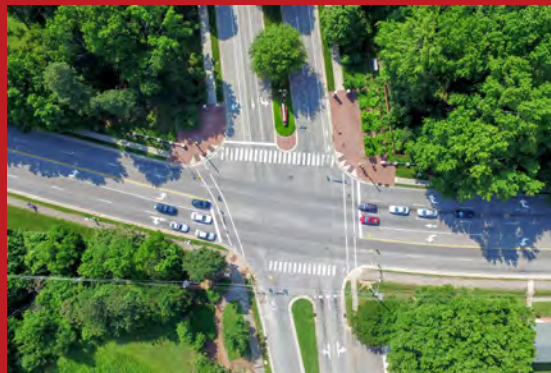




Avent Ferry Road

Corridor Study



Issues and Opportunities Report

September, 2017



RALEIGH
DEPARTMENT OF
CITY PLANNING

raleighnc.gov



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Introduction

Issues and Opportunities

Planning Process

To develop a long-term vision for the Avent Ferry corridor, the existing conditions must first be carefully analyzed to reveal issues that negatively impact users of the corridor and opportunities that could lead to quality-of-life improvements. This document, in combination with the Briefing Book and Kickoff Meeting Summary, outline the physical, economic, and mobility traits of the existing corridor. Empirical data is supplemented with the thoughts and feelings of residents and users collected through online polling and public meetings.

The results of this analysis complete phase 2 of the overall visioning process. Phase 1, Understanding the Project Scope produced the Project Briefing Book and introduced the project to the public through the kickoff meeting in April 2017. Phase 2, Establishing a Shared Understanding for the corridor establishes the issues and opportunities that will guide and influence the process moving forward. In Phase 3 Alternatives Identification, Analysis and Concept Development, the design team will work with the community to create testable development concepts for the corridor and evaluate their appeal to the neighborhood and users. In Phase 4 Preferred Plan Synthesis and Final Recommendations, a single plan for the corridor will be defined and incorporated into the city's official planning and development programs.

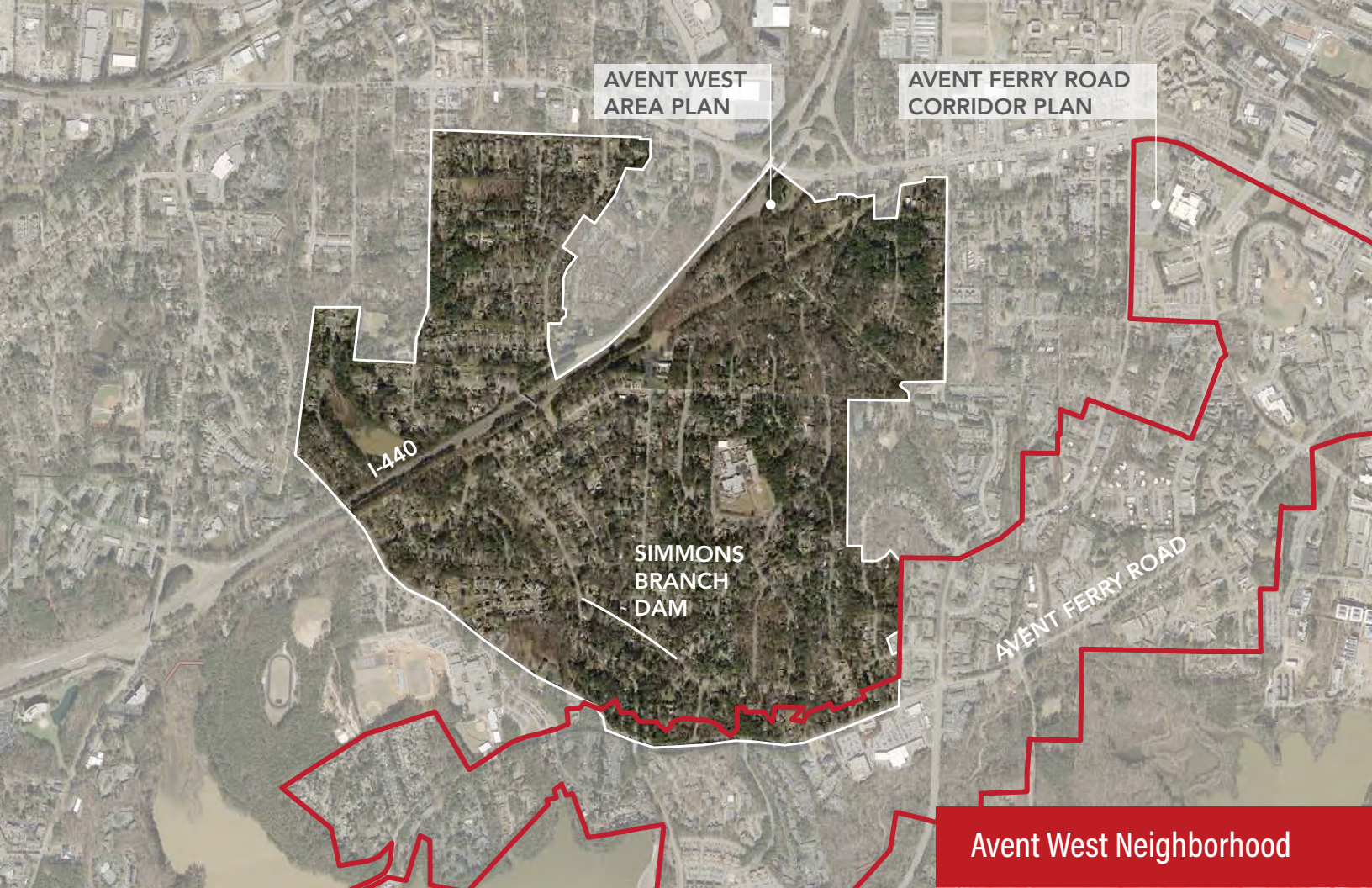
Existing Planning Efforts

The planning boundary includes the road corridor and adjacent properties from its intersections with Western Boulevard at the north end and Tryon Road to the south. A number of plans have been produced for specific areas or properties within this corridor in recent years. Additionally, several nearby entities influence the corridor and must be considered in the visioning process. The following section summarizes major planning efforts that have preceded this visioning project.

2030 Comprehensive Plan

Avent West Neighborhood

As part of the 2030 Comprehensive Plan for the City of Raleigh, the established Avent West neighborhood proposed several policies and actions to encourage the City of Raleigh to preserve and improve Avent West's unique qualities and character. The policies are meant to serve as a guide for this neighborhood as well as places outside the city and are a basis for the adoption of a Neighborhood Conservation Overlay District.



These policies and actions include:

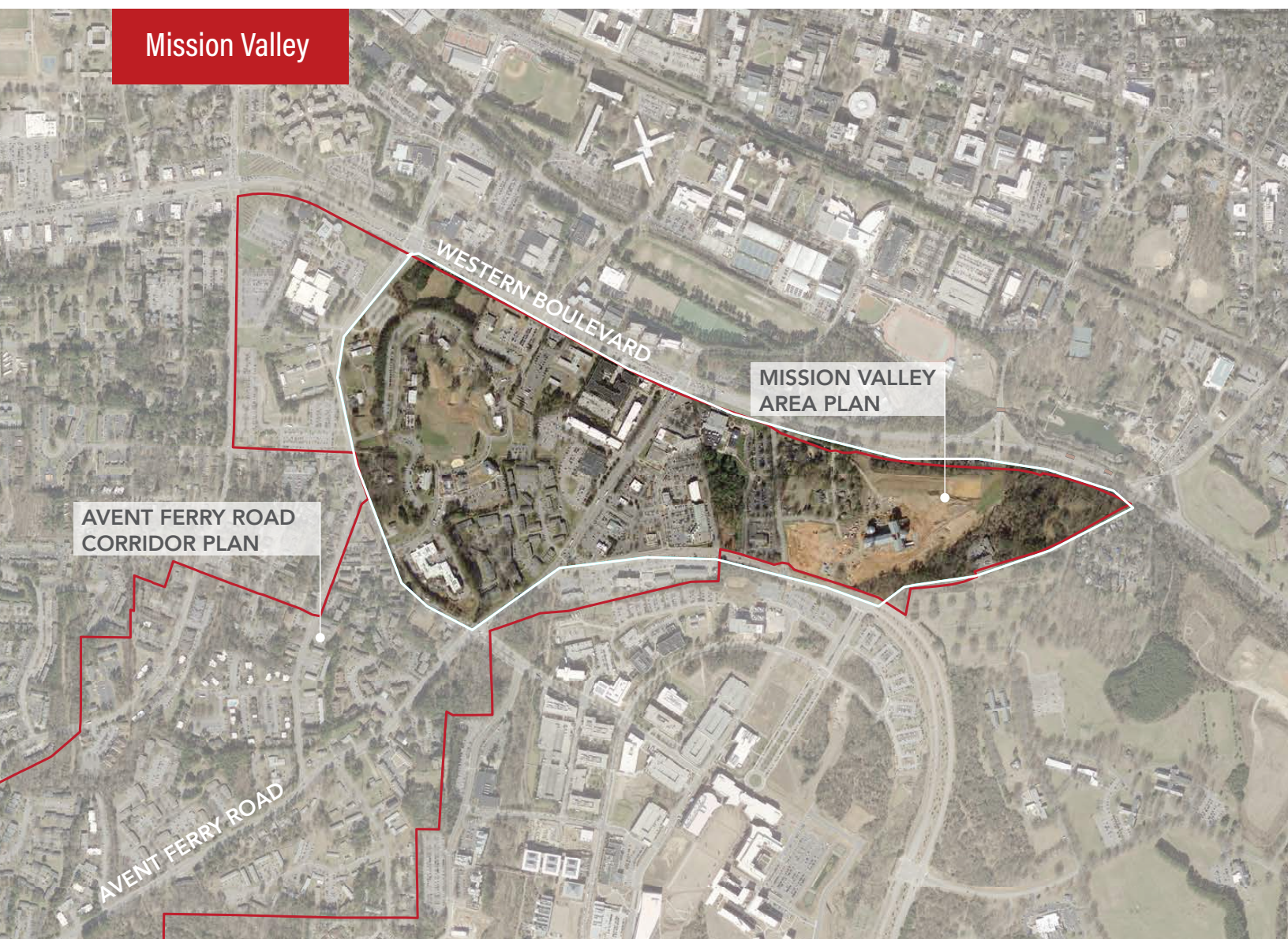
- Western-Avent Ferry Beautification – Improve and beautify both Western Boulevard and Avent Ferry Road where it borders the Avent West neighborhood.
- Avent West Rezoning – All properties within the Avent West neighborhood should be zoned R-4.
- Avent West Zoning Exceptions – Exceptions should be made to Policy AP-AW 2 including keeping certain properties along Kent Road on the eastern side of the Avent West neighborhood zoned as R-10. Areas adjacent to the I-440 Beltline, behind the Western Boulevard Presbyterian Church, should remain zoned for business/advertising. If its use changes, it should be rezoned to R-4.
- Avent West Parking Lot Screening – Landscaping and screening of parking lots should be enhanced and improved for existing and future businesses in the area.
- Simmons Branch Dam – NCDOT should be encouraged to repair or rebuild the dam as part of any future I-440 Beltline widening. This recommendation is based on the Simmons Branch study.
- Traffic Calming on Beltline Accessways – Considerations to reduce speed limits or traffic calming implementations should be made on major I-440 access streets in the area.
- Avent West Greenway Links – Sidewalks and/or paved access from Avent West neighborhood to Raleigh's Greenway system should be made.

Mission Valley

As part of the 2030 Comprehensive Plan for the City of Raleigh and in anticipation of intensified development and transit in the area, several policies were proposed for the Mission Valley area. Mission Valley is a University-based service area with retail, business, institutional, and residential uses, primarily located near Western Boulevard.

These policies include:

- Mission Valley Targeted Growth – Areas within Mission Valley should include a denser mix of uses.
- Mission Valley Student Housing – Student housing is encouraged and necessary in the area except along the eastern end of the Catholic Diocese property next to Pullen Park Terrace.
- Avent Ferry-Centennial Streetscapes – These streetscapes should become more urban in use and design.
- Roman Catholic Diocese Property – This property should be developed primarily as residential on a sliding scale from low-density single-family homes near Pullen Park Terrace to high-density homes toward Avent Ferry Road. The residential properties should be a mixture of attached and detached.



Coordinated Projects

There are several ongoing and future projects near the Avent Ferry study area that must be considered and integrated into any recommendations proposed for Avent Ferry. These projects should work together to help propel the array of goals desired by the private and public organizations involved.

These ongoing and future projects include:

Dorothea Dix Park

Development of this park will bring an influx of non-resident traffic seeking cultural and recreational opportunities. It will likely shift residential demands toward a non-university population, especially in the area east of Mission Valley shopping center.

Pullen Road Extension

Providing a connection from existing Pullen Road to Centennial Campus will relieve some traffic congestion at the Western Blvd – Avent Ferry Road intersection.

NCSU Campus Transit Plan

The plan, due for completion in late 2017, will outline campus interconnections that should be coordinated with city and private services along the corridor.

NCSU Centennial Campus Master Plan

Implementation of the plan will introduce non-student, workforce-oriented housing, office, and retail development.

Uncovering Southwest Raleigh

The project outlines a vision for all of Southwest Raleigh as a creative district characterized by innovation and diversity.

Western Boulevard Crossing Study

Provides guidelines for a grade-separated pedestrian underpass at the intersection of Western Boulevard and Avent Ferry Road.



Summary of Issues and Opportunities:

Results of Phase 1 Visioning Workshop and Kickoff Meeting

The objective of the Aventura Ferry Road Visioning Workshop was to develop a vision for the character of the public realm and adjacent land uses into the future. The information gathered in preparation for and during the workshop contributes to a framework of data, observations, and community input that will be used to generate corridor concept designs and ultimately a single corridor vision. Participants were tasked to identify assets, issues, and opportunities. The full record of the workshop may be found in the Draft Visioning report.

In March 2017, a public meeting was held to kickoff the analysis and design phase of the project. The objective was to present initial findings and introduce the design team to the community. Data and user opinions were collected through a variety of methods including written comments, instant polling, issue-oriented table discussions, and a street cross-section visioning exercise. Highlights of the workshop and meetings include the following:

Written Comments

The single most referenced issue was improving bicycle and pedestrian safety. The corridor presents both real and perceived threats to cyclists and pedestrians. Continuous bicycle lanes are lacking and narrow drive lanes cause conflicts between bicycles and cars. A high number of curb-cuts (driveways) presents dangerous conflict points for both cyclists and pedestrians. Sidewalks are narrow, broken, and often directly adjacent to the street. Some sections of the corridor lack sidewalks on one or both sides.

Residents desire a safer and more efficient public transit system. Despite being the most used transit corridor in the city, quality bus stops are conspicuously absent. With the exception of a few shelters, comfortable waiting facilities are lacking. Many attendees expressed concern that bus stops created congestion and conflict with automobile traffic. Residents suggested dedicated bus lanes and bus pullouts be considered.

Reducing automobile speed and traffic calming were common suggestions. However, many attendees brought up traffic congestion and conflicts between automobiles, buses, and cyclists. These comments reflect a desire for faster, smoother flowing automobile service.

The old building stock along the corridor was noted. Generally, attendees felt the corridor should accommodate taller buildings with higher density in and around Mission Valley, while protecting the character and feel of the tree-lined residential sections to the south. Some felt the primary uses should remain focused on the university, while others want to see the corridor be more inclusive of a larger demographic cross-section.

Kickoff Meeting Polling Results

Keypad and Online Polling

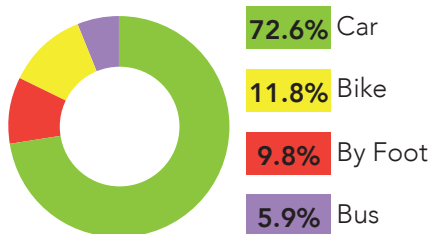
Through online polling, most respondents indicated they primarily access the corridor via automobile, but improvements in pedestrian and bicycle safety were the most important objectives.

Respondents indicated the most important improvements include enhanced bus stops, eliminating curb-cuts, adding medians, providing wide continuous sidewalks, and facilitating mixed-use development.

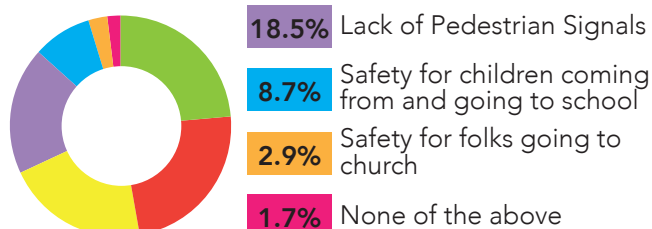
Online polling indicated that the population 25 years old and older was well and evenly represented. Unfortunately, the 18-25 demographic was extremely underrepresented given that much of the housing in the corridor is occupied by college students and the much of the retail and transit options serve this population.

The following graphs show excerpts of the workshop activities. The complete results of the process are located in the full Kickoff Meeting Summary report.

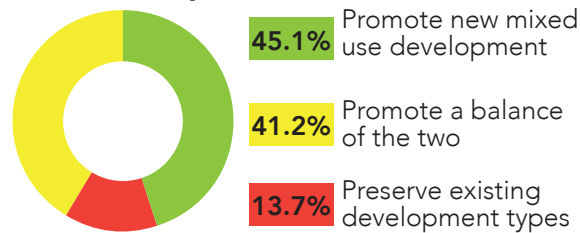
My primary mode of travel along Avent Ferry Road is:



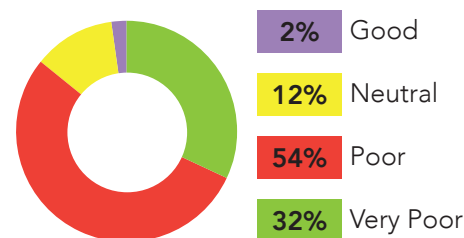
What safety issues concern you most along Avent Ferry Road?



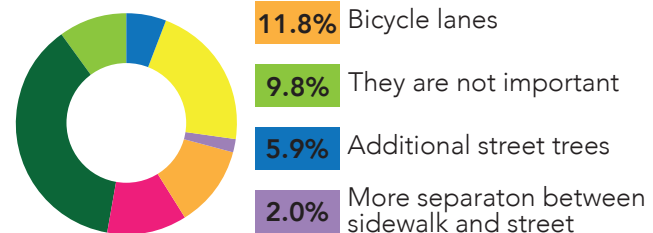
The most important Land Use fix is:



How would you rate the safety of Avent Ferry Road?

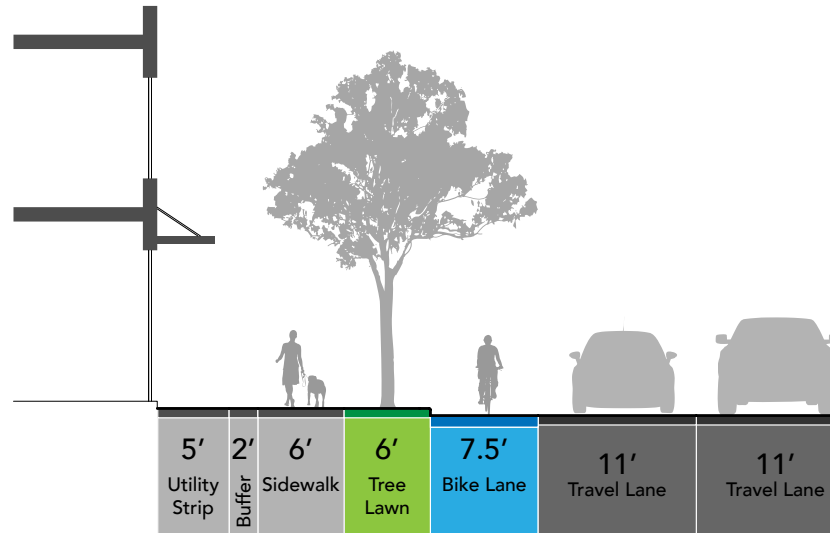


The most important Public Realm / Streetscape fix is:



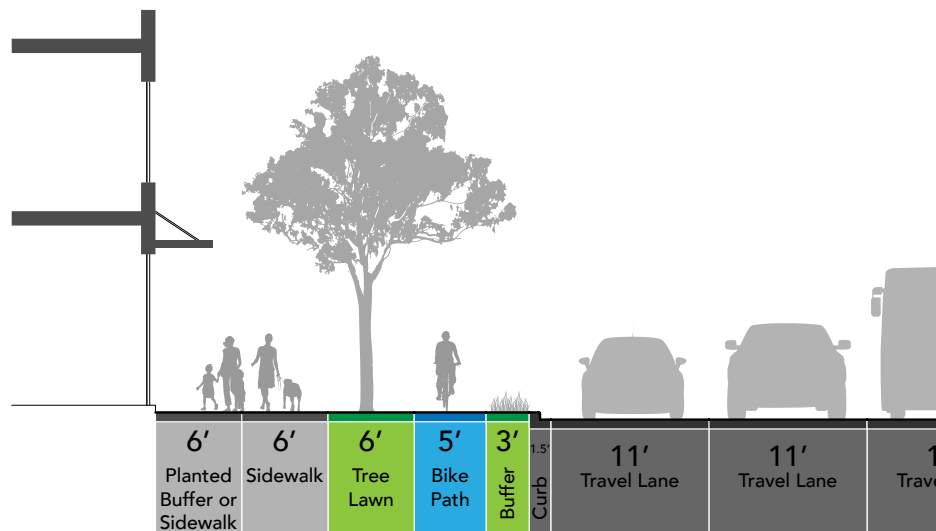
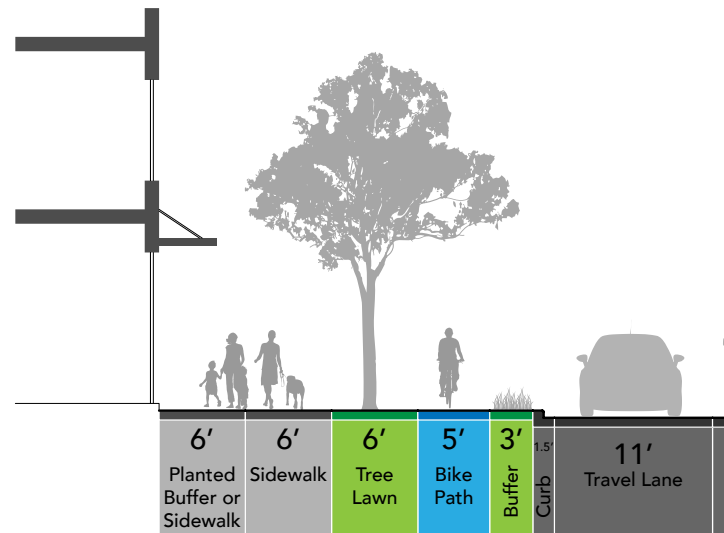
Which objectives are the most important for the corridor (Choose top 3)



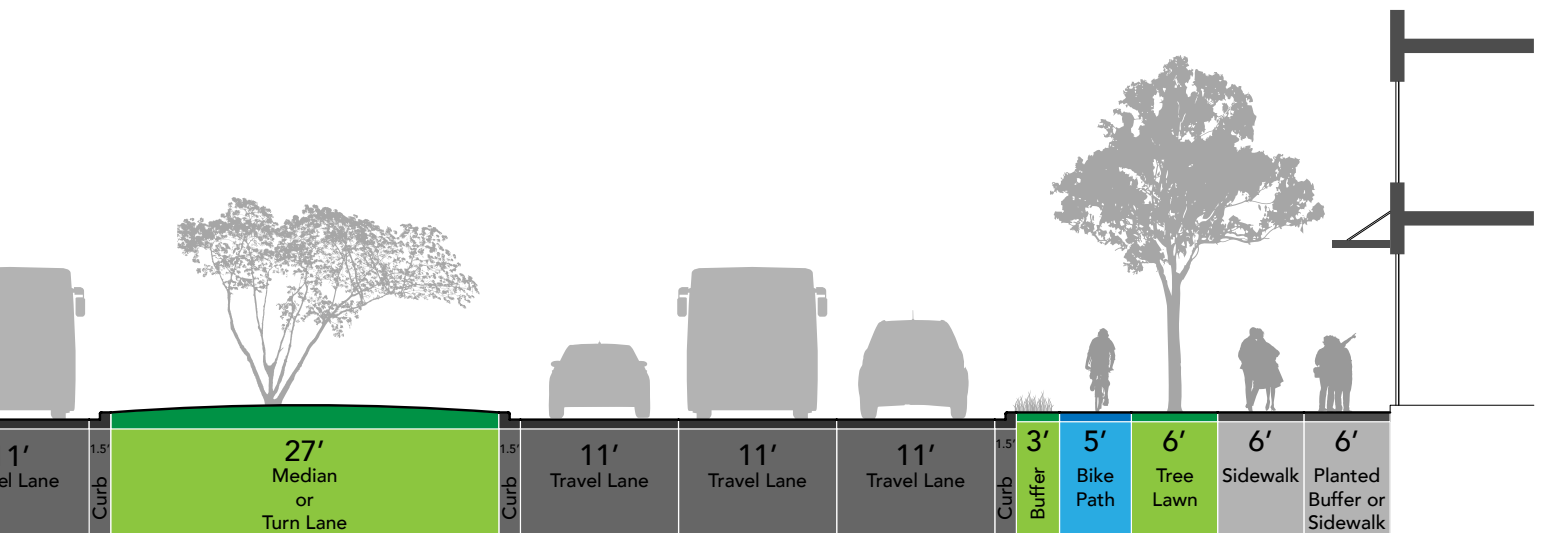
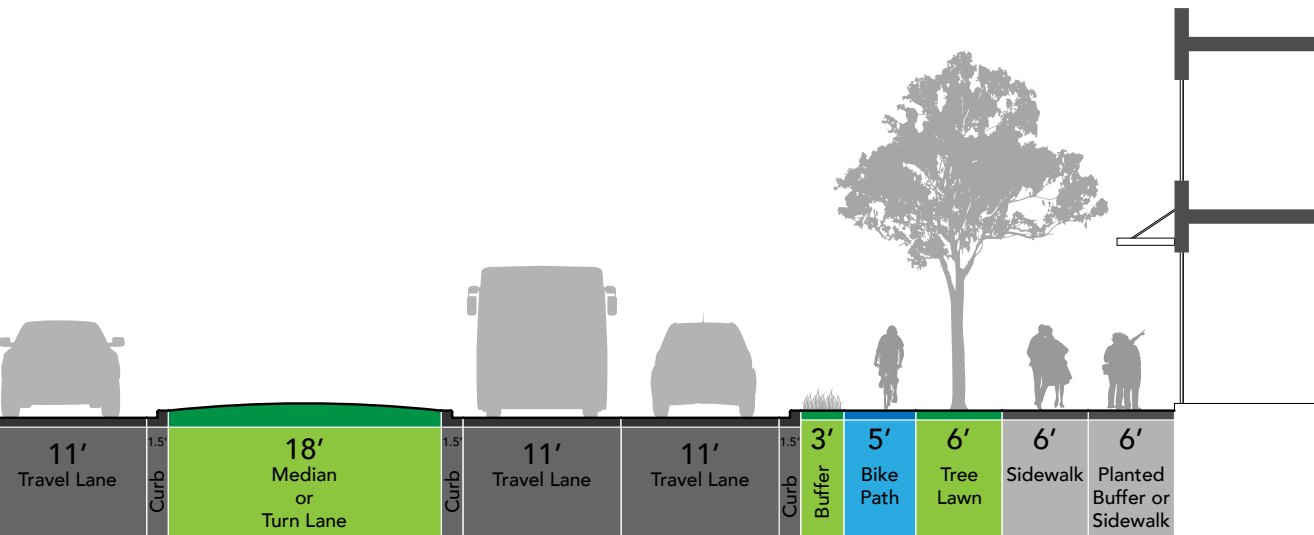
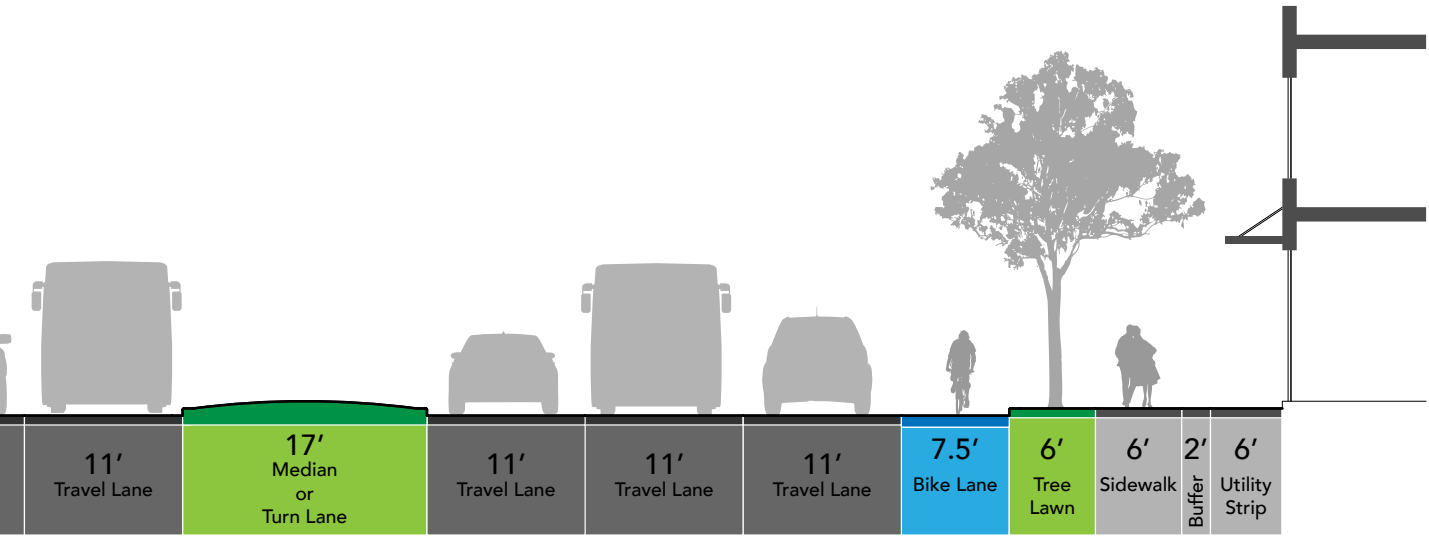


Street Section Visioning Exercise

Kickoff Meeting participants, with the assistance of city and consultant staff, created their ideal streetscape sections using the online Streetmix tool. These sections highlight the community's desires regarding sidewalks, bicycle lanes, traffic lanes and other amenities, including street trees and planted buffers. The three sections shown here represent the most commonly preferred elements and right-of-way widths. Notably, almost all participants would like to see protected bicycle lanes or off-street bike paths, along with wider sidewalks and street trees. The Kickoff Meeting Summary document contains all sections created and collected at the meeting.



Avent Ferry Street Section Visioning Exercise





Issues and
Opportunities



1 Transportation Analysis

Summary

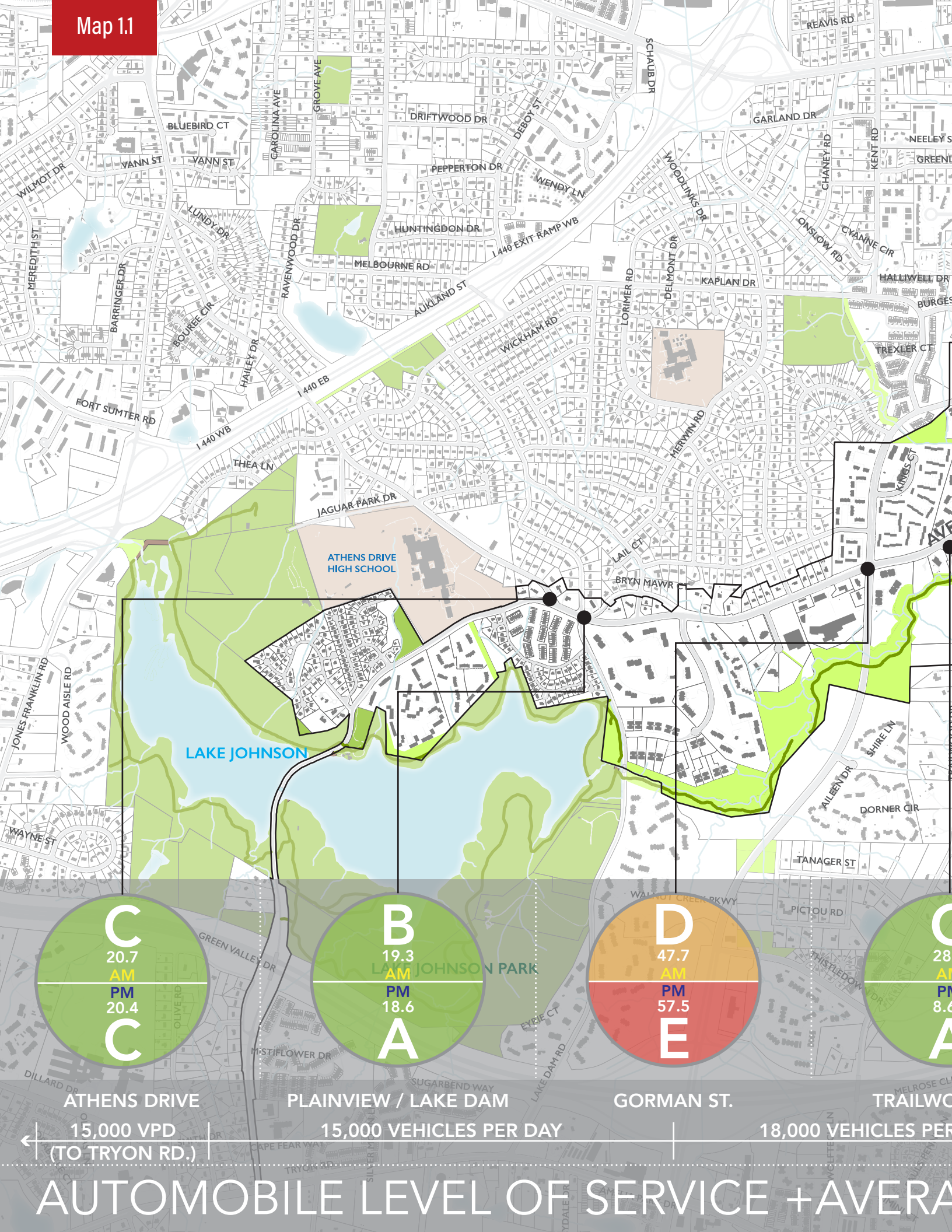
The Avent Ferry Road corridor runs from the main campus of North Carolina State University (NCSU) to NCSU Centennial Campus to Lake Johnson. The corridor starts at the intersection with Western Boulevard and leads south through the intersection with Gorman Street to the intersection with Tryon Road. The corridor serves NCSU students, residents, retail and commercial centers, the new Catholic Diocese of Raleigh, and commuters connecting through the corridor. Transit assets along the corridor include city-operated GoRaleigh bus operations and the NCSU Wolfline. Some of the apartment complexes also offer shuttle service to and from the NCSU campuses. Many pedestrians and cyclists use the Avent Ferry Road corridor despite few crosswalks, inconsistent sidewalk/multiuse path patterns, and numerous curb-cuts/driveways that create possibly dangerous conflict points.

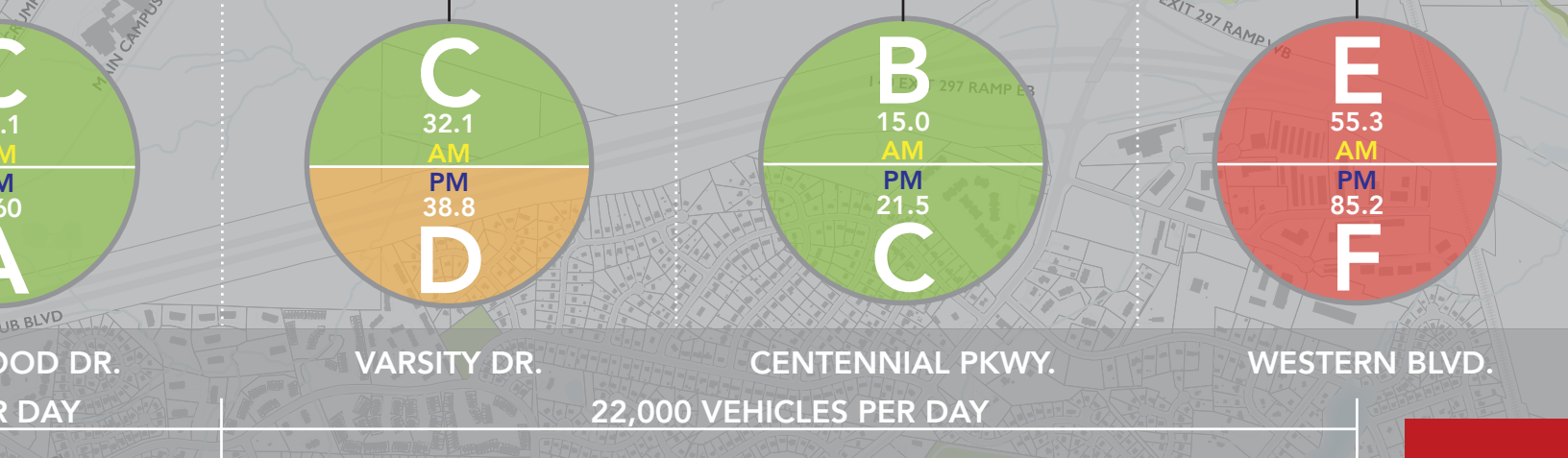
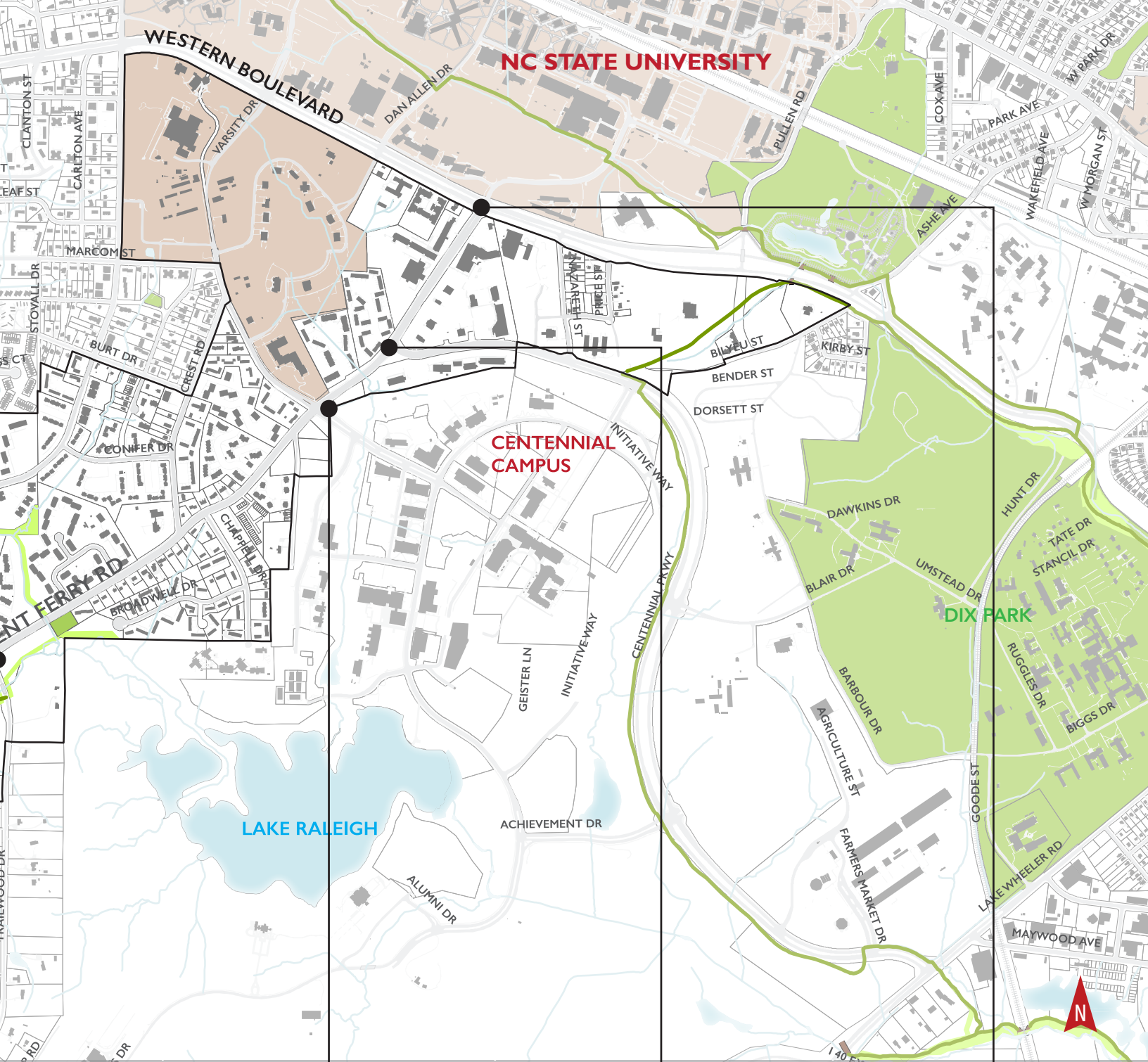
The Avent Ferry Road corridor is an ideal candidate for transportation and land use improvements. With high traffic volumes, a high level of transit ridership, and bicycle and pedestrian activities, an opportunity exists to restructure the corridor using a complete streets approach to create a safer and more vibrant corridor. Complete streets are designed to facilitate the movement of people through a corridor using multiple modes including automobile, bike, pedestrian, and transit. A central focus of the complete streets approach should be to locate a hub of Raleigh's planned Bus Rapid Transit system (BRT) at the intersection of Western Boulevard and Avent Ferry Road.

Existing Conditions, Data Collection, Review, and Analysis

Along most of the corridor, traffic is operating at an acceptable level of service (LOS). Level of service is a measure of automobile infrastructure effectiveness that is based on average delay per vehicle (per the most recent Highway Capacity Manual). An acceptable level of service for this corridor is LOS E, based on City of Raleigh LOS standards. The three intersections that have the most peak hour congestion are Western Boulevard, Varsity Drive, and Gorman Street. Those intersections' less than acceptable LOS are an indication that roadway and operations improvements may be necessary to maintain acceptable vehicular traffic flows along the corridor.

With many pedestrians, bicyclists, and transit riders utilizing the corridor, there is an opportunity to improve bike/ped infrastructure along the corridor. The number of driveways and intersections, along with few crosswalks, create a number of dangerous conflict points along Avent Ferry Road for pedestrians, cyclists, and motorists alike. Indeed, crash rates for those conflict points are higher than those for similar facilities across North Carolina.





The existing conditions, traffic analysis and crash analysis were prepared by the project team using data provided by the City of Raleigh. The traffic data consisting of 2014 turning movement counts collected and current traffic signal timing plans for the following key intersections with Avent Ferry Road:

- Western Boulevard
- Centennial Parkway/Centennial Court
- Varsity Drive
- Trailwood Drive
- Gorman Street
- Lake Dam Road/Pineview Drive
- Athens Drive

The project team used a City of Raleigh standard 2.5 percent growth rate to compound the 2014 traffic volumes annually to 2017 traffic volumes. To consider the future traffic improvements, the project team incorporated a proposed traffic improvement provided by the City of Raleigh at the intersection of Avent Ferry Road and Varsity Drive. The proposed improvement is the addition of a separate eastbound left-turn lane on Varsity Drive. This improvement not only creates better operations by removing the left-turn from the through movement, it also increases the safety of that intersection by making it more predictable to cyclist and pedestrians.

The crash data provided by the City consisted of crash reports from 2012 to 2016 along the corridor, between Western Boulevard and Tryon Road. The five-year crash data were used to establish the crash rate, crash injuries and crash severity index for the roadway segments between intersections along the Avent Ferry Road corridor.

Field Reconnaissance

In order to get a realistic picture of traffic patterns, road conditions, and travel times, the project team drove the corridor during both the AM and PM peak hours noting information on traffic patterns, road conditions, and travel times. This took place over two (2) days in July – July 20th 2017 for the AM peak and July 26th, 2017 for the PM peak. A reduced NCSU student population and the summer vacation season likely resulted in reduced traffic volumes and less traffic congestions during these field visits.

The project team used a GoPro camera to record a drive through of the corridor during the AM peak, starting at 7:30am and ending at 8:30am on July 20th. Two loops were completed (each loop consisting of driving the full length of Avent Ferry Road going southbound and then northbound). The team revisited the corridor to drive the PM peak, starting on at 5pm and ending at 5:45pm on July 26th. Once again, Two loops were completed (each loop consisting of driving the full length of Avent Ferry Road going southbound and then northbound).

In addition to the peak time runs, the project team drove the corridor at 1:30 pm on July 26, 2017 to observe traffic patterns associated with the dedication of the Holy Name of Jesus Cathedral. The drive was also timed and recorded using a GoPro camera.

The following observations were noted during site visits:

AM Peak Runs

- First run had no significant congestion or notable queuing.
- Second run had a queuing issue at Trailwood Drive. Bus stop at Trailwood Drive (on the northbound side) caused some traffic queuing into the intersection of Avent Ferry Road and Trailwood Drive.

PM Peak Runs

- The first run had congestion on Avent Ferry Road at the Gorman Street intersection. Queuing on Varsity Drive at the Avent Ferry Road intersection.
- Second run had congestion between Varsity Drive and Trailwood Drive. Increased congestion and queuing of traffic on Avent Ferry Road at the Gorman Street intersection. Queuing in Athens Drive to turn onto Avent Ferry Road. Queuing to turn on to Tryon Road from Avent Ferry Road. A large queue at Avent Ferry and Western Boulevard with the project team waiting two signal cycles to turn right onto Western Boulevard.

Additional Run for dedication of the Holy Name of Jesus Cathedral Traffic

- Queuing to turn left onto Varsity Drive from Avent Ferry Road.
- Traffic south of the intersection at Varsity Drive was very light.
- The intersection at Western Boulevard congested. Project team had to sit through two signal cycles to turn left from Avent Ferry Road onto Western Boulevard.

Pedestrian and Bicycle Safety Comments

- The corridor is well-used by cyclists and pedestrians. A high number of curb cuts create numerous, potentially dangerous conflict points for pedestrians and cyclists.
- While the corridor has a multiuse path along some sections of the roadway, the width and placement of bicycle and pedestrian infrastructure is inconsistent.
- Sidewalk on northbound side becomes a pavement trail between the intersection of Avent Ferry Road and Centennial Parkway and the main entrance to the Mission Valley Shopping Center

- A greenway connects to Avent Ferry Road and provides connections to Lake Johnson Park and Centennial Campus.
- There is an opportunity to increase signalized pedestrian crossings and reduce the number of curb-cuts and driveways that interrupt the multiuse path to create better access management.
- Based on traffic data provided by the City, the number of pedestrians using the pedestrian crosswalks is highest at Western Boulevard and gradually decreases heading south along the corridor.

Transit Comments

- With GoRaleigh and Wolfline having multiple routes along the corridor, Avent Ferry Road has the highest transit ridership of any route in Raleigh.
- The corridor is serviced by frequent headways and has multiple stops, including stops with bench and shelter amenities.
- An opportunity exists to consolidate some GoRaleigh and Wolfline stops to take full advantage of existing stop amenities.
- Four (4) private apartment shuttles use the Avent Ferry Road corridor to serve the NCSU campus. One connects Centennial Campus to North (Main) campus. The other private shuttles on the corridor travel from Gorman Street to the Avent Ferry/Morril intersection (both northbound and southbound). NCSU anticipates that the shuttle would likely reroute to Trailwood Drive to bypass Gorman Street after bridge construction has been completed.



Traffic-Oriented Comments

- Traffic analysis results are based on the current timing plans as provided. There is an opportunity for improvements by optimizing the splits, the shortest amount of time allowed for a phase, while maintaining the same cycle length.
- Based on the results of the analysis, the intersection at Western Boulevard operates at the poorest level-of-service (LOS) for the AM and PM peak hours. This intersection also has the highest number of pedestrians at the pedestrian crossings.
- The intersection at Gorman Street also operates at a poor LOS with the worst case being in the PM peak hour. Exclusive right-turn lanes on the Avent Ferry approaches would improve overall LOS.
- The signalized intersections of Pineview/Lake Dam Road and Athens Drive along Avent Ferry Road are clustered together to operate as one signal system. These intersections are operated at an acceptable LOS.

Character of Avent Ferry

The Avent Ferry Road corridor is approximately three (3) miles long. It extends north-south/east-west from Western Boulevard to Tryon Road. The corridor encompasses many different land uses, including institutional (NCSU campus), retail and commercial centers, mixed commercial/multifamily development, single-family residential, and a city-owned parks and greenways.

Based on the 2015 NCDOT Annual Average Daily Traffic (AADT), the AADT along Avent Ferry Road is approximately 22,000 vehicles per day (vpd) near Western Boulevard and approximately 8,600 vpd near Tryon Road.

The roadway consists of three different cross-sections:

1. **Beginning at Western Boulevard and continuing south to Gorman Street**, the roadway consists of five travel lanes with two dedicated lanes for each direction of travel and a center lane dedicated as a two-way left-turn lane. Sidewalks and paved paths occur along both sides of the road. The posted speed limit is 40 mph for this section.
2. **From Gorman Street to Athens Drive**, the roadway consists of three travel lanes with one dedicated lane for each direction of travel and a center lane dedicated as a two-way left-turn lane. This roadway consists of sidewalks and paved paths along both sides. The posted speed limit is 40 mph.
3. **From Athens Drive to Tryon Road**, the roadway consists of a two-lane cross-section with a paved path and sidewalk on one side of the roadway. The posted speed limit for this section of roadway is 35 mph.

Crash Analysis

Using data provided by NCDOT for the period of January 1, 2012 to January 1, 2017, a crash analysis was performed along the Avent Ferry corridor from Western Boulevard to Tryon Road. The analysis includes aggregating the total number of crashes within 150 feet of the intersections, computing crash frequency, severity index, and equivalent property damage only (EPDO) at all the major intersections along the corridor (Note the intersection of Athens Drive was not analyzed because it is proximity to Pineview Drive does not allow for two data points). The intersection analysis indicates the highest crash incidence at Varsity Drive, with a crash frequency of 16.2 crashes per year followed by

Western Boulevard with a crash frequency of 14.4 crashes per year. Based on the severity indices, the crashes at Tryon Road, Centennial Parkway, and Varsity Drive are found to be relatively severe.

Additionally, a section summary of the corridor revealed that the section from Western Boulevard to Centennial Parkway had the highest crash rate of 16.45 crashes per million vehicle miles (MVM). The sections from Pineview Drive to Athens Drive and Athens Drive to Tryon Road had the highest severity indices of 3.96 and 3.30 respectively.

The major crash types found along Avent Ferry Road are Rear End, Angle, Left Turn and Sideswipe and have been aggregated for each section. Map 1.2 documents the number, rate, and severity of traffic crashes along seven stretches of Avent Ferry Road. Crash severity takes into account the prevalence and severity of injury, and death, such that the higher the severity index, the worse the crashes in a given stretch tend to be. For the five-year period between 2012 and 2016, there were no traffic fatalities on Avent Ferry Road, and one “disabling” injury.

Vehicular Travel (Daily Traffic, Speeds, and Behavior)

Based on the traffic volumes and turning movement counts provided by the City of Raleigh, several traffic patterns can be identified along Avent Ferry Road. Peak congestion along the corridor is the northbound Avent Ferry Road AM peak and the southbound PM peak. Heaviest traffic volume moves through the corridor from Varsity Drive to Athens Drive. Traffic is also congested northbound at Centennial Parkway and Western Boulevard at both the AM and PM peaks.

Varsity Drive is congested eastbound crossing Avent Ferry Road during AM peak and westbound during the PM peak. The intersection of Gorman Street and Avent Ferry Road is congested westbound across Avent Ferry Road in the AM peak and eastbound during the PM peak. The project team field visit confirmed these intersections as congestion and queuing points.

Overall, the traffic patterns indicate a substantial commuter corridor with through traffic moving along Avent Ferry Road. A likely destination and key employment center driving this commuting pattern is NCSU main campus and the technology incubator at NCSU Centennial Campus. Commuters also move down the corridor using it as a connector to the I-440/I-40 Beltline.

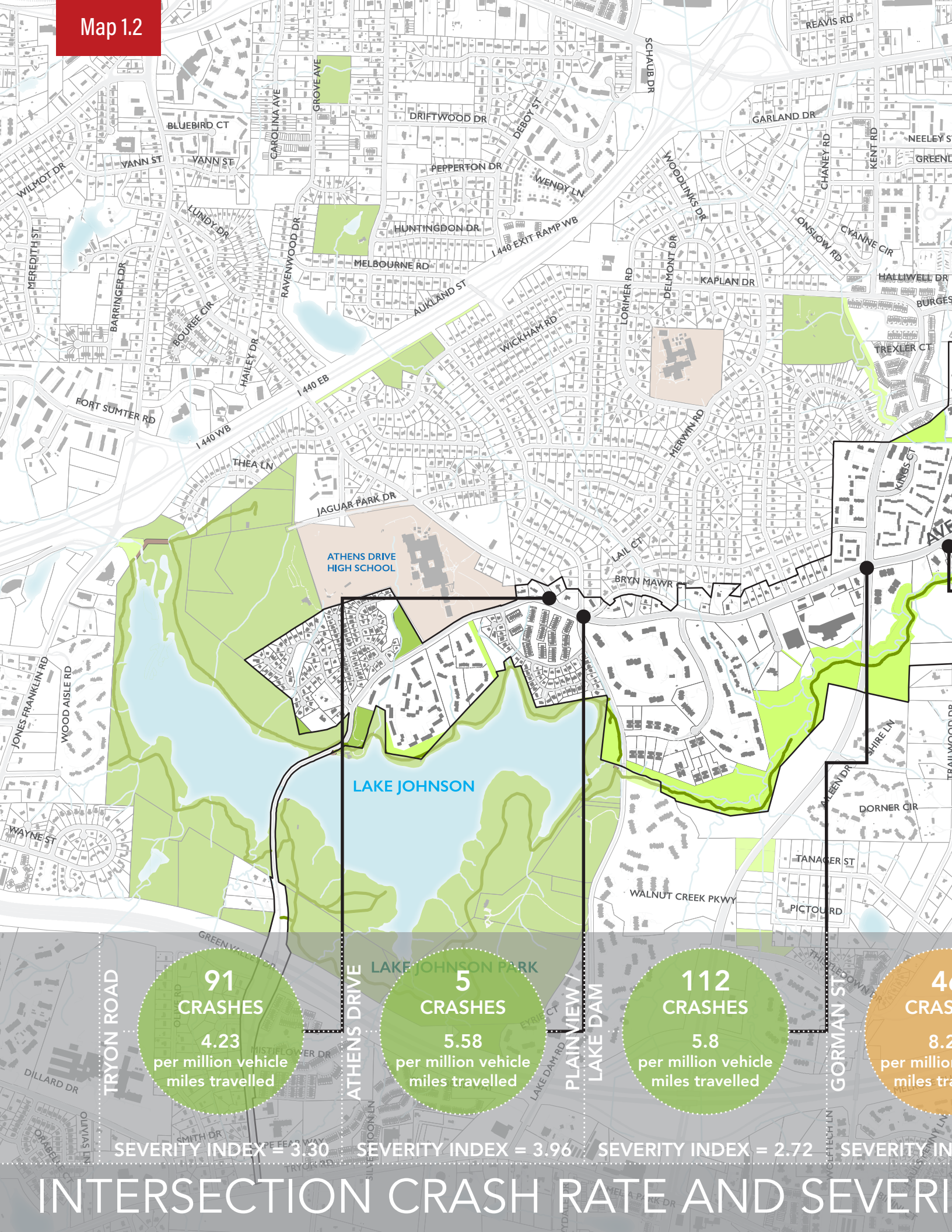
Transit Ridership

Serviced by two GoRaleigh routes and five NCSU Wolfline routes, the Avent Ferry Road corridor has the highest transit ridership in Raleigh. GoTriangle provides regional transit connectivity adjacent to the corridor with three routes that have stops along Western Boulevard just west of Avent Ferry Road.

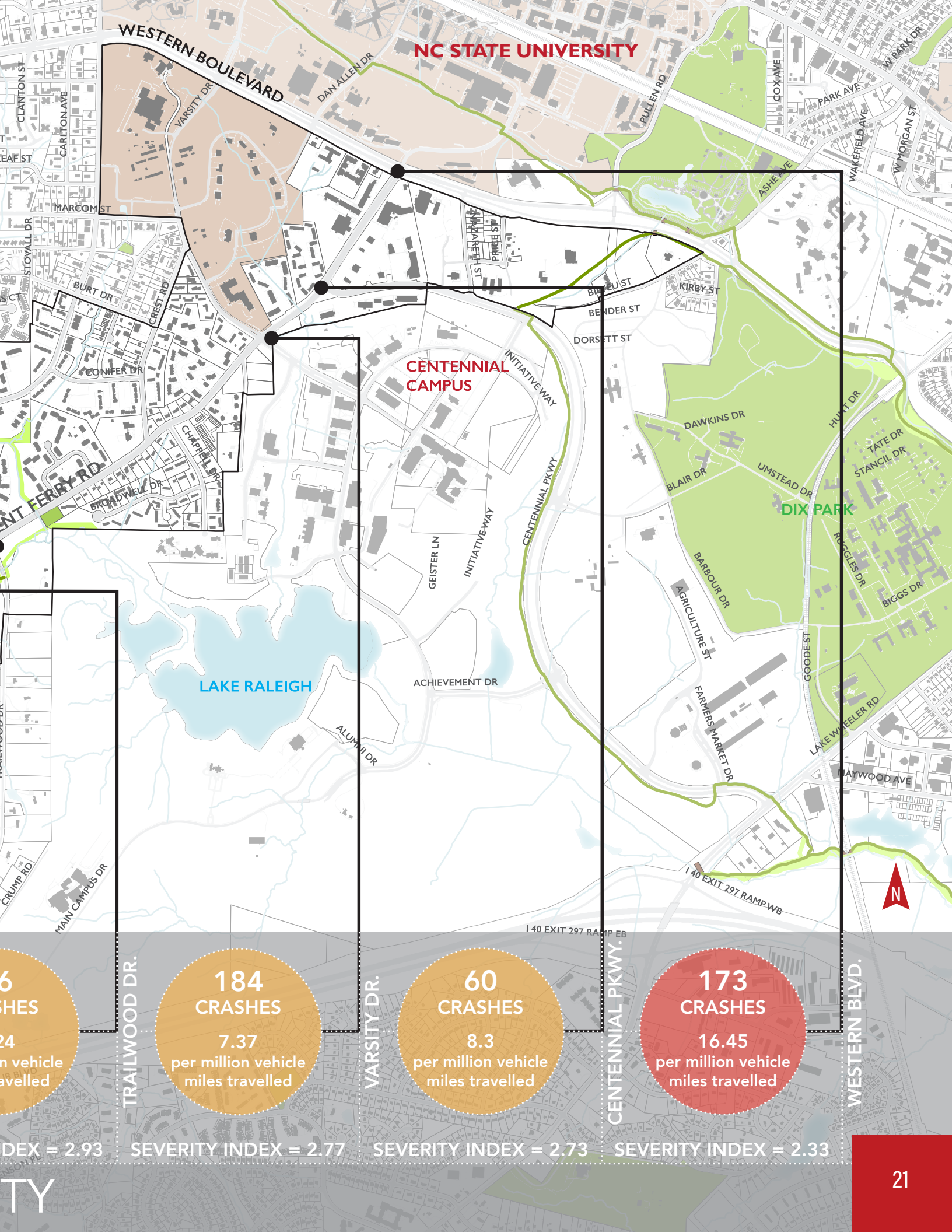
GoRaleigh Route 11 services Avent Ferry Road from Western Boulevard to Gorman Street as it connects Downtown Raleigh with the University Suites neighborhood on Tryon Road. The route has 30 minute headways during weekday peak hours and operates 60 minute headways the remainder of the week.

GoRaleigh Route 11L services the corridor from Western Boulevard to Athens Drive linking NCSU with the residential areas west of Avent Ferry Road. This route operates 60 minute headways Monday through Saturday.

The NCSU Wolfline operates five routes down the corridor - Route 1, Route 3, Route 8, Route 9, and Route 10. The routes, serving the NCSU main and centennial campuses, are shorter than the GoRaleigh routes and have more frequent headways.



INTERSECTION CRASH RATE AND SEVERITY



Wolfline routes and Headways along Avent Ferry Corridor

Route Number	Origin/ Destination	Stops of Notes	Direction	Daytime Headways (Minutes)	Nighttime Headways (Minutes)
1	Western Blvd to Greek Way	Avent Ferry Shopping Center	Inbound/ Outbound	8	10 (evening) 20 (night)
3	Western Blvd to Varsity Drive	Main Campus and Centennial Campus	Inbound/ Outbound	6	8 (afternoon) 12 (night)
8	Western Blvd to Centennial Pkwy	Main Campus and Centennial Campus	Inbound/ Outbound	10	20
9	Gorman Street to Greek Way	Main Campus to Avent Ferry Park and Ride	Outbound	9	12 (evening) 45 (night)
10	Gorman Street to Varsity Drive	Centennial Campus Circulator / Neighborhoods West of Corridor	Inbound	15	30

There are numerous facilities along the corridor that improve comfort and access to transit including bus shelters with benches at many stops as well as sidewalks on both sides of Avent Ferry Road. Two locations have GoRaleigh and Wolfline stops within a few hundred feet of each other but different stop locations and amenities. The GoRaleigh stop has bus shelters at both stops while Wolfline has

a signed stop with no benches. This provides an opportunity for GoRaleigh and Wolfline to coordinate these stops and allow Wolfline riders the use the shelter. In addition to providing more amenities for Wolfline riders, this would streamline bus stops to reduce confusion and create more certain traffic pattern regarding where buses will stop.

Average daily stop-level ridership for GoRaleigh Route 11 in the Avent Ferry Corridor

Route Number	Direction	Stop Name	Average Boardings	Average Alightings	Total
11	Outbound	Avent Ferry Rd at Western Blvd	5.7	17.3	23
11	Outbound	Avent Ferry Rd at Champion Ct	10.6	20.3	30.9
11	Outbound	Avent Ferry Rd at Varsity Dr	14.6	35.4	50.0
11	Outbound	Avent Ferry Rd at Crest Rd	2.5	9.7	12.3
11	Outbound	Avent Ferry Rd at Brigadoon Dr	0.0	6.1	6.1
11	Outbound	Avent Ferry Rd at Trailwood Dr	0.0	12.6	12.6
11	Outbound	Avent Ferry Shopping Centennial	43.8	96.5	140.3
11	Inbound	Avent Ferry Shopping Centennial	18.6	6.5	25.1
11	Inbound	Gorman at Avent Ferry Rd	28.6	8.1	36.7
11	Inbound	Avent Ferry Rd at Gorman St	47.5	5.3	52.8
11	Inbound	Avent Ferry Rd at Trailwood Dr	14.6	1.4	16.0
11	Inbound	Avent Ferry Rd at Brigadoon Dr	15.9	1.6	17.5
11	Inbound	Avent Ferry Rd at Chappell Dr	0.0	0.0	0.0
11	Inbound	Avent Ferry Rd at Lake Raleigh Rd	33.2	7.6	40.9
11	Inbound	Avent Ferry Rd at Varsity Dr	9.8	9.8	19.6
11	Inbound	Avent Ferry Rd at Centennial	33.8	11.6	45.4
11	Inbound	Avent Ferry Rd at Western Blvd	8.3	11.3	19.7
11	TOTAL	TOTAL (AVENT FERRY CORRIDOR ONLY)	288	261	549
11	TOTAL	TOTAL (ENTIRE ROUTE)	762	836	1598

Data is from ridership numbers from April 2017 to June 2017.

Average daily stop-level ridership for GoRaleigh Route 11L in the Avent Ferry Corridor.

Route Number	Direction	Stop Name	Average Boardings	Average Alightings	Total
11L	Outbound	Avent Ferry Rd at Western Blvd	5.8	1.4	7.1
11L	Outbound	Avent Ferry Rd at Varsity Dr	15.0	17.2	32.3
11L	Outbound	Avent Ferry Rd at Crest Rd	1.4	5.5	6.9
11L	Outbound	Avent Ferry Rd at Brigadoon Dr	1.9	10.7	12.5
11L	Outbound	Avent Ferry Shopping Centennial Pkwy	50.8	30.6	81.4
11L	Outbound	Avent Ferry Rd at Crab Orchard Dr	1.3	4.8	6.0
11L	Outbound	Avent Ferry Rd at Pineview Dr	1.4	4.1	5.6
11L	Outbound	Athens Dr Avent Ferry Rd	3.3	3.1	6.4
11L	Inbound	Athens Dr Avent Ferry Rd	2.6	1.4	4.1
11L	Inbound	Avent Ferry Rd at Lake Dam Rd	5.2	2.3	7.5
11L	Inbound	Avent Ferry Rd at Crab Orchard Dr	7.1	0.0	7.1
11L	Inbound	Avent Ferry Shopping Cent- EOL	0.0	5.8	5.8
11L	Inbound	Avent Ferry Shopping Centennial Pkwy	23.4	34.9	58.3
11L	Inbound	Avent Ferry Rd at Gorman St	19.7	19.4	39.1
11L	Inbound	Avent Ferry Rd at Trailwood Dr	5.5	1.1	6.6
11L	Inbound	Avent Ferry Rd at Brigadoon Dr	8.4	3.7	12.1
11L	Inbound	Avent Ferry Rd at Lake Raleigh Rd	11.9	7.0	18.9
11L	Inbound	Avent Ferry Rd at Varsity Dr	0.0	2.9	2.9
11L	Inbound	Avent Ferry Rd at Centennial Pkwy	5.5	6.7	12.3
11L	Inbound	Avent Ferry Rd at Western Blvd	1.4	6.5	7.9
11L	TOTAL	TOTAL (AVENT FERRY CORRIDOR ONLY)	172	169	341
11L	TOTAL	TOTAL (ENTIRE ROUTE)	304	316	620

Data is from ridership numbers from April 2017 to June 2017.

Transportation Needs Assessment

There are several opportunities to meet future and current needs at the corridor scale. Specific improvements can create a safer, more efficient and more vibrant corridor. Some issues to address and potential opportunities are:

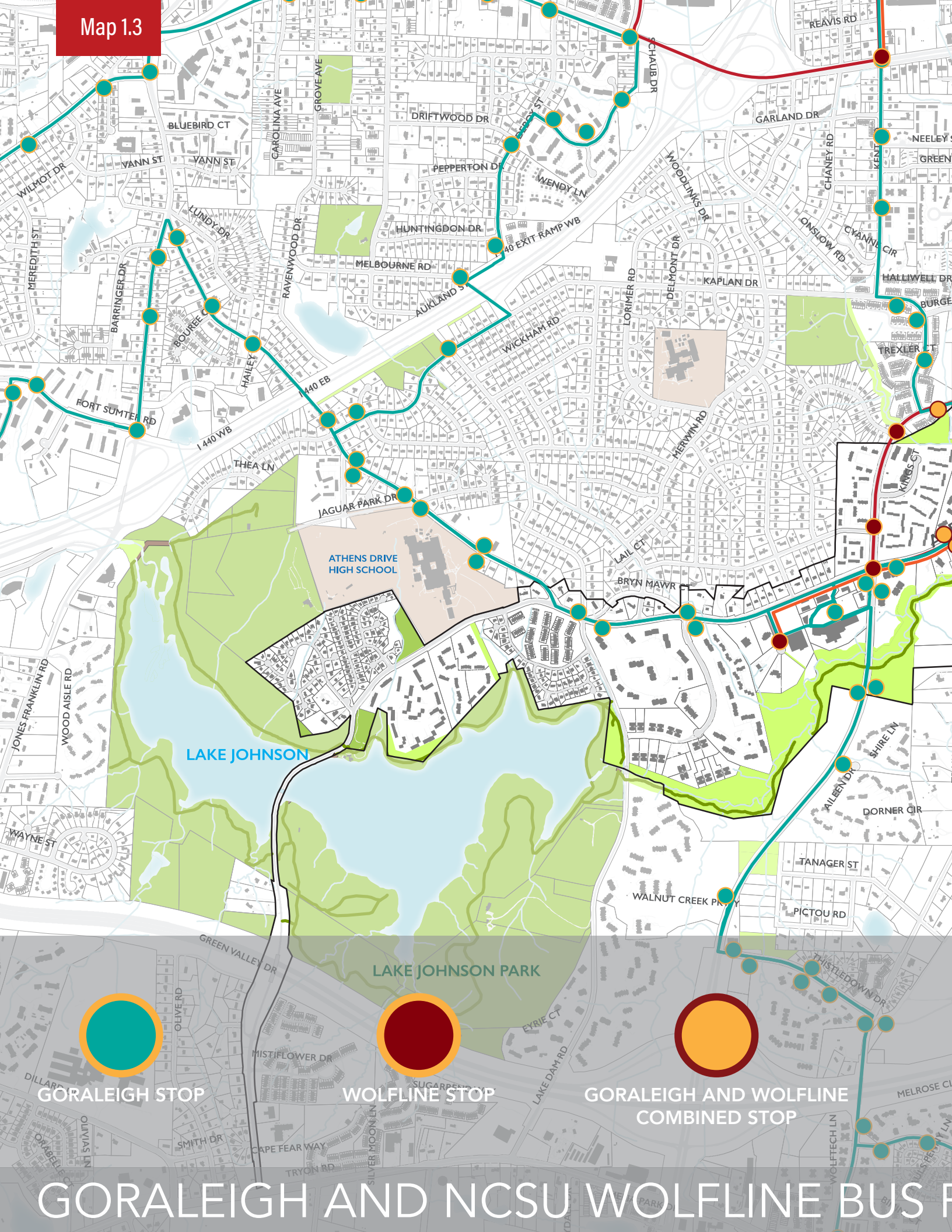
- Developing the intersection of Avent Ferry Road and Western Boulevard as a BRT hub is a unique opportunity to increase the use of GoRaleigh's improved system and to catalyze transit-oriented development at Mission Valley and beyond.
- Improvements can be made to the intersection at Western Boulevard. An NCDOT project (TIP No. EB-5718) will add a bicycle/pedestrian tunnel just west of the intersection. It is planned for construction in 2021. This project will be coordinated with the replacement of the Pullen Road bridge over Western Avenue (TIP No. B-5675).
- There is a NCDOT Project (TIP No. B-513) to replace the bridge over Lake Johnson. It is scheduled for construction in FY2018. The City of Raleigh also recently added a sidewalk to the bridge over I-40 to connect residential development to Lake Johnson Park.
- Creating exclusive right-turn lanes along Avent Ferry Road at the intersection of Gorman Street to separate turning traffic from through traffic would improve overall LOS.
- Additional improvements at the intersection of Varsity Drive and Avent Ferry Road. Improvements could be made to vehicular traffic, bike infrastructure, and pedestrian crossings.
- Reduction of bike and pedestrian conflict points along the sidewalk with more consistent sidewalk/multiuse path along the corridor; fewer curb-cuts and more crosswalks.
- Addition of bike lanes to Avent Ferry Road or a dedicated bike path adjacent to the road.



- Potential to have bus priority infrastructure to keep bus service on-time as peak hour congestion increases and LOS decreases.
- Developing a complete streets approach to the Avent Ferry Road corridor. This would provide a safer more comfortable bike and pedestrian experience; encourage the continuation of the high transit ridership; and provide for efficient LOS along the corridor.

Addressing the transportation issues presented here and capitalizing on the opportunities that arise from these issues can create a more efficient and safer corridor along Avent Ferry. A more bike, pedestrian, and transit friendly corridor would help create the market for mixed-use redevelopment and more dense, walkable land use along the corridor.

Map 1.3

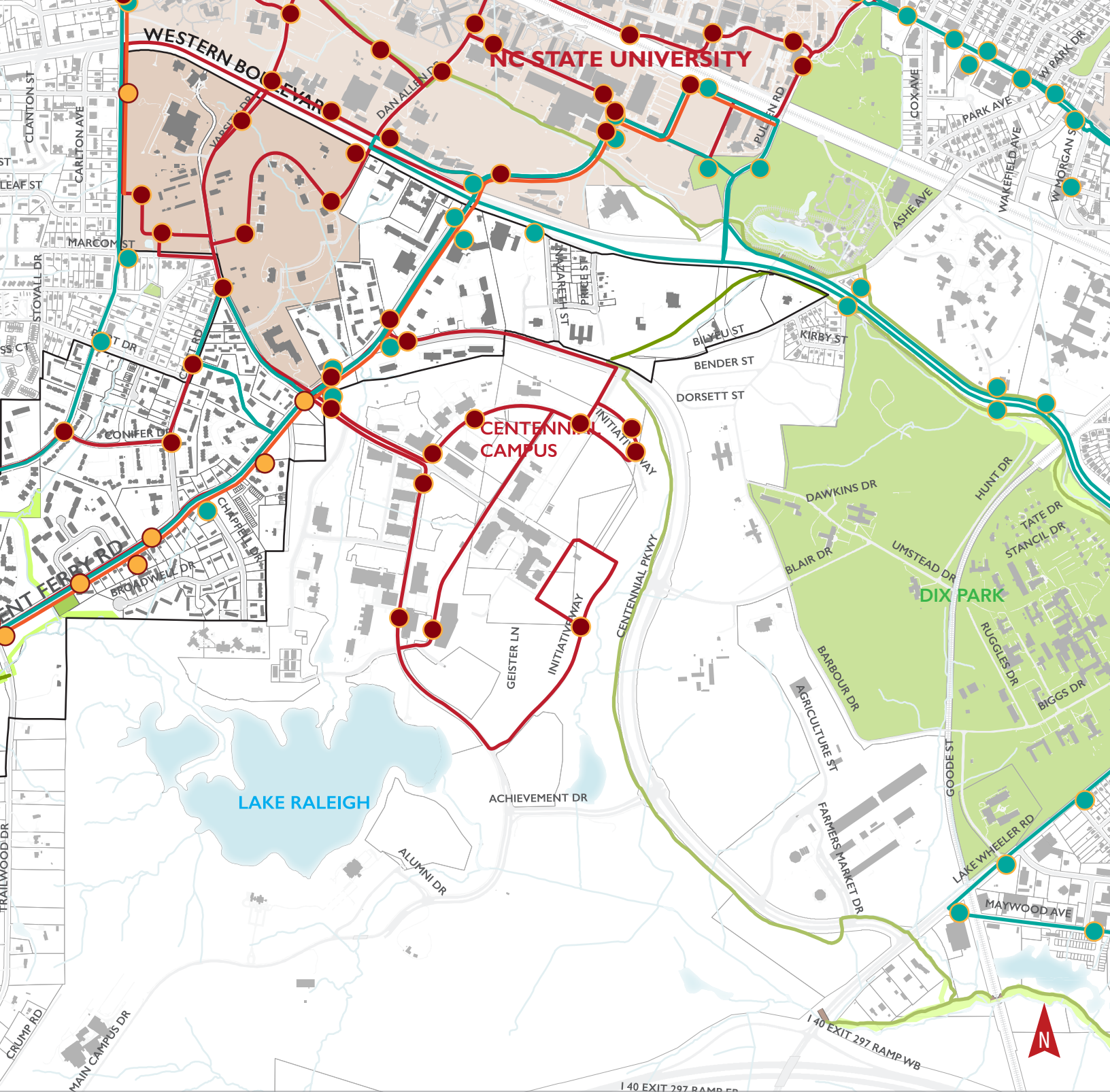


GORALEIGH STOP

WOLFLINE STOP

GORALEIGH AND WOLFLINE
COMBINED STOP

GORALEIGH AND NCSU WOLFLINE BUS ROUTES





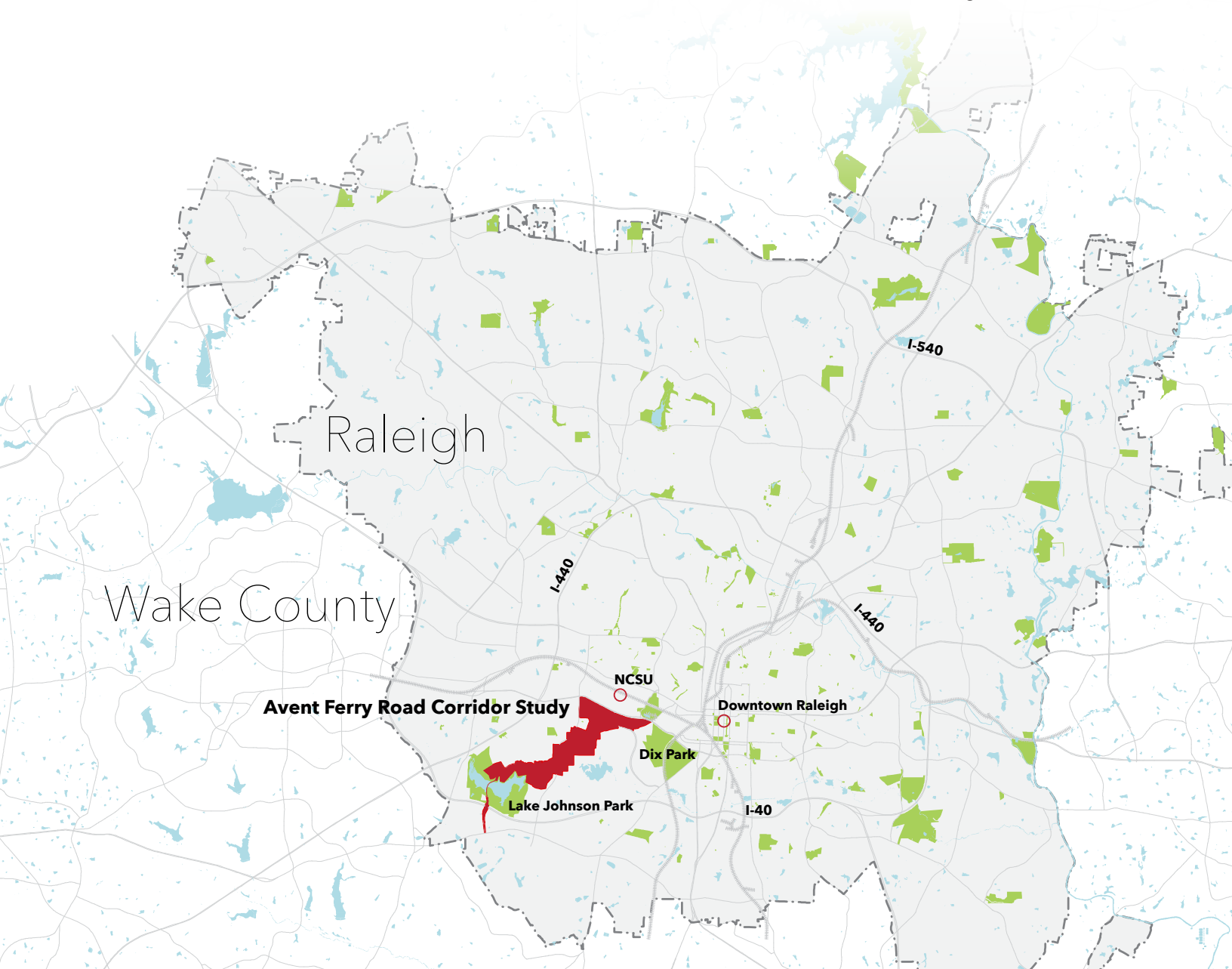
2 Market and Economic Analysis

Introduction

This section summarizes data and findings related to land use, demographics, economic realities, and the real estate market. Analysis provides a foundational understanding of the area that allows for feasible land use, infrastructure, and development strategies that will assist in creating a vibrant and economically sustainable corridor.

Study Area & Context

Avent Ferry Road is located in southwest Raleigh. The study area includes the road's full extent, from Western Boulevard in the north to Tryon Road in the south. Additionally, the area includes a wide range of land uses, including public parks and greenways, single- and multifamily housing development, commercial shopping centers, and institutional uses, including North Carolina State University and the Roman Catholic Diocese of Raleigh.



Discovery & Investigation

The market analysis builds upon prior studies produced by the city, N.C. State University, and local community organizations, including but not limited to:

- 2030 Comprehensive Plan for the City of Raleigh (City of Raleigh)
- Southwest Raleigh Economic Assessment for Creative District – 2012 (Hillsborough Street Community Service Corporation)
- Southern Gateway Corridor Study Final Report (City of Raleigh)
- Southwest Raleigh Residential Market Analysis (Hillsborough Street Community Service Corporation)
- N.C. State University Master Plan – Centennial Campus Precinct
- Avent Ferry Corridor Project – Briefing Book (City of Raleigh)
- Dorothea Dix Campus Plan – City of Raleigh (City of Raleigh)
- Avent Ferry Corridor Project – Vision Document (City of Raleigh)

Raleigh's population continues to demonstrate rapid growth in comparison to the state and nation. There continues to be a growth trend in the millennial market, which is both racially and ethnically diverse. This is primarily associated with the University and expanding service sector. There are a number of key assets that serve the Avent Ferry corridor.



Population Growth 2010-2017

13%
CITY OF
RALEIGH, N.C.

8%
NORTH
CAROLINA

What We Heard – Public Input

Opportunities

- Build dense, compact, pedestrian-friendly developments.
- Promote mixed-use development.
- Encourage mid-rise (3-6 stories) development on northern end of corridor.
- Promote redevelopment of older shopping centers and residential sites as mixed-use development.
- Provide a wider selection of mobility and parking options.
- Improve connectivity between employment, education, entertainment, and recreation uses.

Issues

- Existing structures have poor relationship to the street.
- Lack of continuity and character among building types.
- Outdated housing and obsolete structures.
- Poor roadway maintenance, flooding, aging sidewalks, too many curb cuts.
- Safety concerns and poor connectivity. Improve and widen sidewalks, provide crosswalks, medians, make area bike friendly.
- Flood plain and topography limits development opportunities.
- Surrounding development plans may limit market demand in the corridor.



Summary

Issues & Opportunities – A Market Perspective

The evaluation of the market to determine land uses and a viable implementation strategy begins with a few simple questions, which we answer throughout this report:

- Who is the customer?
- What businesses and uses are appropriate?
- Where do people want to be?
- When and how should the city and community take action?
- Why does it matter?

Feedback from the community, through a variety of venues, revealed the community's vision, desires, and needs. The majority of survey respondents felt that the best use of the corridor would be associated with mixed-use development. The synthesis of this feedback focused on four primary areas: Housing, Shopping and Entertainment, Recreation, and Mobility.





While the Avent Ferry study area is defined by parcels along the corridor, there are neighboring “areas of influence” with planned developments or future improvements that impact the market and future land uses on Avent Ferry Road. These include the Catholic Diocese of Raleigh properties, the N.C. State University Centennial Campus, and the Dorothea Dix Park, which provides a link between the Avent Ferry corridor and the Southern Gateway district and Downtown. The Southern Gateway Corridor Study revealed a focus on expanding residential development, affordable housing, and development of a large inventory of underutilized sites. Another area of influence impacting the corridor includes Western Boulevard and its many “Soft Sites” for redevelopment.

Targeted Sites

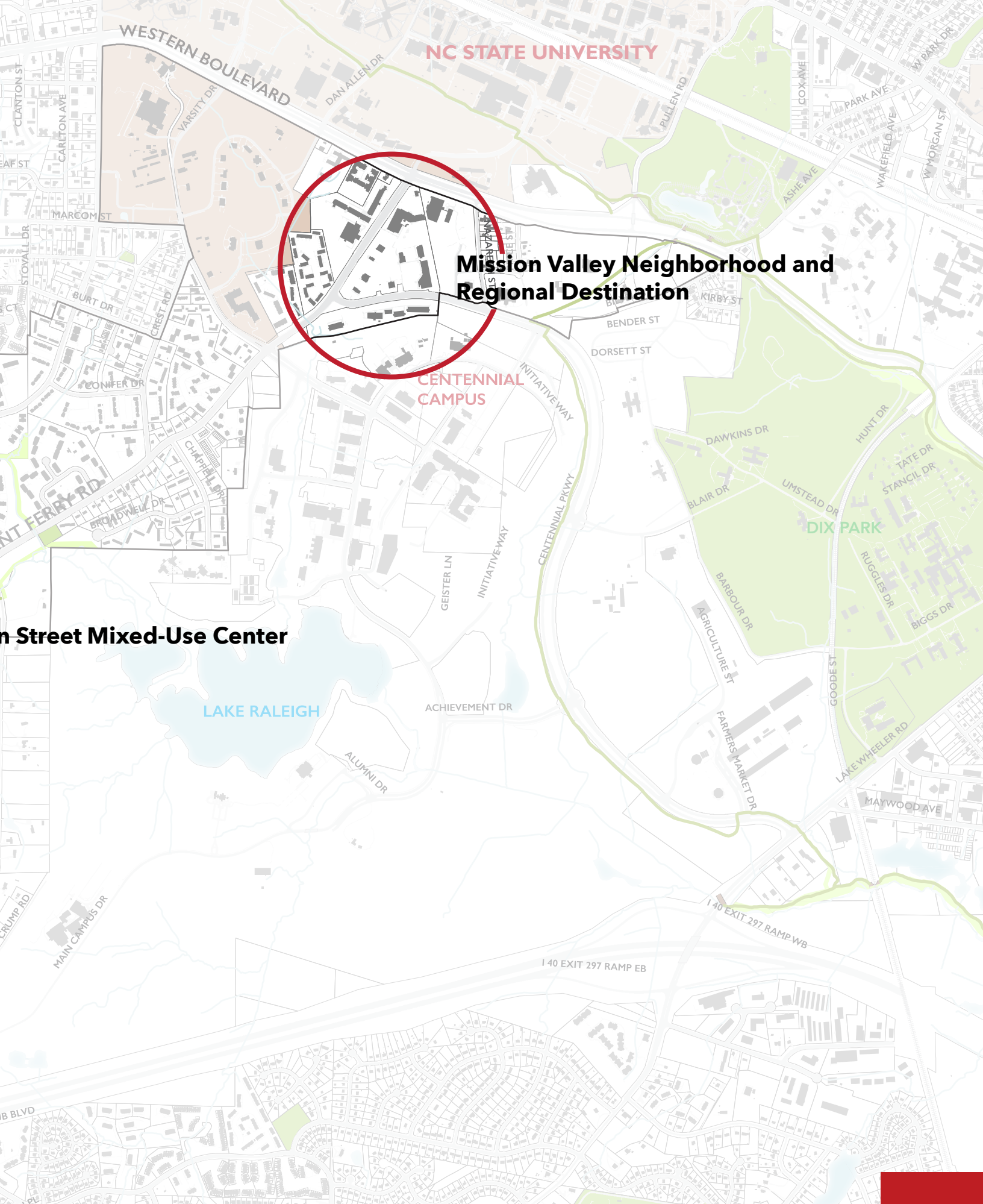
We identified three targeted areas along the corridor for having the greatest opportunity for retrofit, including private reinvestment and public infrastructure improvements:

1. Mission Valley – Regional Destination
Mixed-Use (high-density) redevelopment area targeting dining, shopping, and entertainment. Also includes lodging and housing.
2. Gorman Street – Lifestyle Center
Mixed-Use (mid-density) redevelopment area targeting convenience retail, professional services, and housing.
3. Lake Johnson – Recreational Area
Infill development (low-density) area targeting housing and recreation.

Further details can be found in the Development Strategies section of this report.







Key Themes

Community input gathered at the three initial public meetings indicated that there is a need for more shopping, dining, and entertainment. Our findings reveal a corridor that is both changing and diversifying, while at the intersection of the new economy. This underscores the following key themes:

Destination Avent Ferry Road

Each day many residents commute through the corridor, while some drive to the corridor for shopping, restaurants, and recreation. While the corridor currently serves as a “drive-through,” it should be repositioned as a bridge or link between the many adjacent assets, including educational, employment, entertainment, and recreational destinations.

A large percentage of the population in the area perceive the corridor as unsafe for walking or biking. While a primary goal of the Avent Ferry Road Corridor Study is to plan for and implement a safe, vibrant corridor for vehicles, transit users, bikers, and pedestrians, it also has the opportunity to leverage public infrastructure for an improved economic outlook. Transitioning the corridor into a central boulevard and connecting greenways, parks, and recreation areas would attract and support additional private investment. Such public-private partnerships are critical to the long-term success of Avent Ferry Road. The plan must be prudent regarding where and how development should occur.

Lifestyles for All Ages and Demographics

The corridor could benefit from replacing outdated structures and providing new housing options. Some community members have commented that there is too much student housing and few options to attract and retain millennials. National trends in shrinking family size and consumer preferences

in housing, shopping, and work environments provide opportunities to diversify the corridor’s land uses and commercial services, while retaining graduate students, faculty and employees, many of whom come from diverse ethnic backgrounds. The corridor should also provide opportunities for older residents to age in place – enabling all demographic groups to stay together in their community. A number of underutilized parcels and aged and aging buildings represent an opportunity for mixed-use redevelopment along the corridor that could accommodate the needs of all demographics. In addition, investments in multimodal transportation networks can supplement new development and provide critical access to the area’s open space amenities, namely Lake Johnson Park, Dix Park, and Pullen Park.

Retrofit for Arts and Innovation

The City of Raleigh received a number of accolades in 2016, among them included “2nd Easiest City to Find a Job,” “#2 in America’s Hottest Spot for Tech Jobs,” and “Best Cities for Recent Grads.” The corridor could evolve into an innovation and arts district, tapping into the unique, creative, and intellectual capital that surrounds it.

With Avent Ferry as its central boulevard, the corridor should provide a broader variety of housing options, expanded employment, and updated dining, shopping and entertainment that could complement the market. While the draw of NCSU for education and employment is evident, the new economy’s emerging technologies and changing demographics can provide new workplace options. The three target areas identified in this section areas could accommodate this new market and serve as catalyst sites for future growth.

In addition to accommodating new technologies and labor patterns, the corridor will need to accommodate the broader area’s economically and ethnically diverse population. Indeed, the area’s diversity is a significant asset that should be highlighted and celebrated.

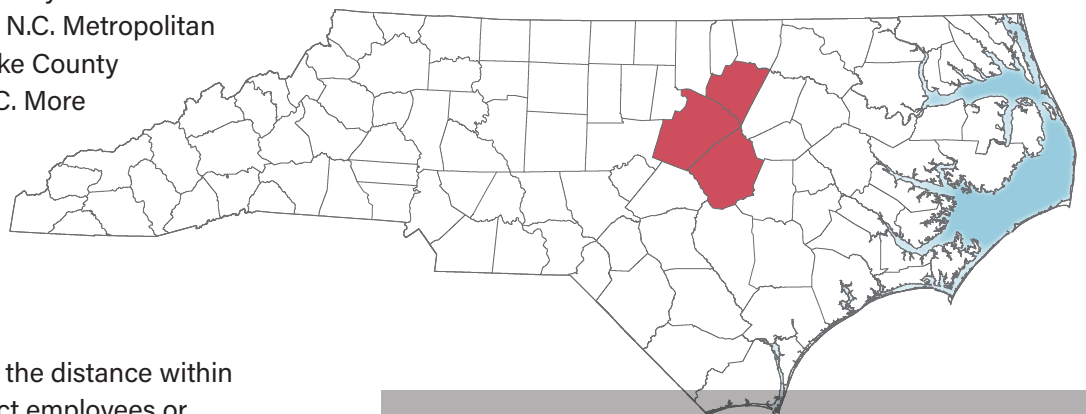


Demographic and Economic Analysis

Geographic Considerations

When compiling demographic and economic data, the most appropriate geography must be determined to understand the market from a macro to micro view, as well as for comparison to determine competitive advantages or disadvantages. The Avent Ferry Road corridor is located within the Raleigh, N.C. Metropolitan Statistical Area (MSA), Wake County and the City of Raleigh, N.C. More specifically, the corridor is also located within the 27606 ZIP Code.

dictated by traffic volumes, convenience, and the number of options within a certain area. In urban settings this may also include walk-time. For each trade area, thresholds are measured to determine adequate capacity, or demand, for a particular use.



Trade Areas

Trade areas are defined by the distance within which a location may attract employees or consumers. Often trade areas are defined by a radius distance around a site, in terms of miles. While a useful benchmark, most now define trade area based upon drive-time, the distance a customer or employee is willing to drive. This is

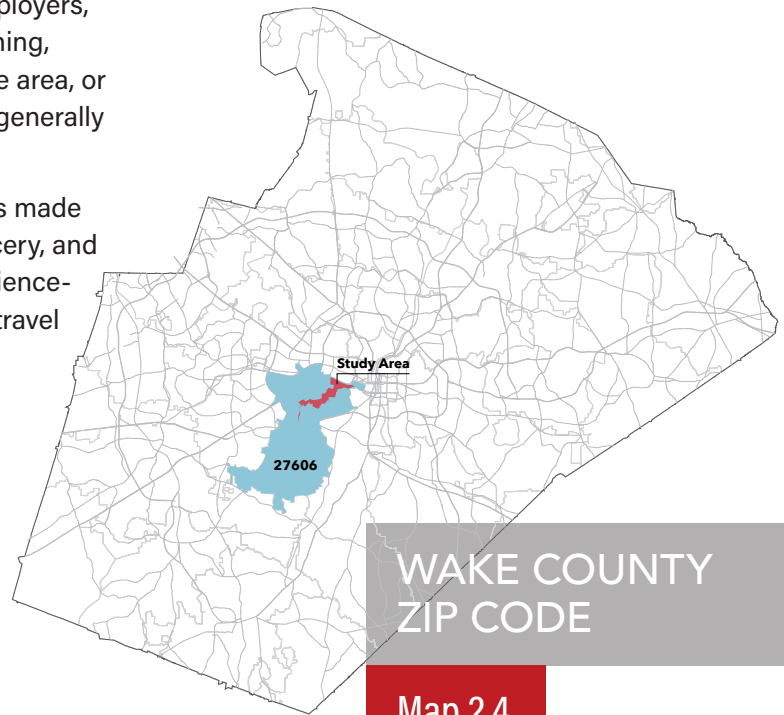
RALEIGH METROPOLITAN
STATISTICAL AREA (MSA)

Map 2.3

Larger destination-oriented uses, such as major employers, hospitals, and major retail centers for furniture, clothing, specialty items, and automobiles, have a larger trade area, or distance that a consumer would be willing to drive, generally 10 minutes or more.

Local employment and retail locations for purchases made for daily living, such as gas, food, prescriptions, grocery, and household items, draw from a smaller, more convenience-oriented trade area. The average consumer will not travel more than 10 minutes for these activities.

Given the corridor's location, adjacent to NCSU and other major employers in the region, the trade area analysis for the corridor identified seven-minute drive times for each of the three targeted areas to determine opportunities for both convenience-oriented and destination-oriented uses. These are further discussed in the Real Estate section of this report.



Demographic Considerations

Population Characteristics

The table below provides a macro to micro view of the region, county, city, and the ZIP code within which the Avent Ferry corridor study area is located. Wake County has higher median and household incomes as compared to the others, while the 27606 ZIP Code area has a lower household size and median age – a full seven years younger than both Wake County and the Raleigh MSA and five years younger than the City of Raleigh. This variation is reflective of the student population living and working on the NCSU campus and surrounding area.

Generational Cohorts

To further the discussion, we expand the age segments into generational cohorts. Many communities are focused on ways they can attract Millennials, also known as Generation Y, who were generally born between 1982 and 2002. This is the dominant generation in the Avent Ferry corridor, largely influenced by the University.

2016 Estimates (ESRI) Population Growth Estimates	Raleigh, N.C. MSA	Wake County	Raleigh	27606 ZIP Code
2016 Total Population	1,275,121	1,023,520	444,271	46,240
2010-2016 Population Growth Rate	1.94%	2.06%	1.53%	1.27%
2016-2021 Population Growth Rate	2.12%	2.26%	1.88%	1.78%
2021 Estimated Total Population	1,415,954	1,144,274	487,537	50,494

Source: US Census, ESRI, Rose Associates

2016 Estimates (ESRI) Income, Age, & Household Size	Raleigh, N.C. MSA	Wake County	Raleigh	27606 ZIP Code
2016 Total Population	1,275,121	1,023,520	444,271	46,240
2016 Median Household Income	\$63,910	\$68,962	\$55,191	\$41,616
2016 Average Household Income	\$86,304	\$91,666	\$78,764	\$65,459
2016 Median Age	35.9	35.4	33.2	27.4
2016 Average Household Size	2.6	2.58	2.38	2.29

Source: US Census, ESRI, Rose Associates

Lifestyle Segmentation

Lifestyle Segmentation, as defined by ESRI's Tapestry®, combines demographic and socio-economic data to further understand the residents in a neighborhood and the consumers in an area. Tapestry® assists in understanding lifestyle characteristics, including housing and consumer and entertainment preferences. The entire U.S. population is categorized within 14 Tapestry LifeMode® groups, from which 65 Lifestyle Segments can be identified based upon generational cohorts at various geographic levels. These provide in-depth information about the character of the area's households, combining demographic, social, and behavior patterns.

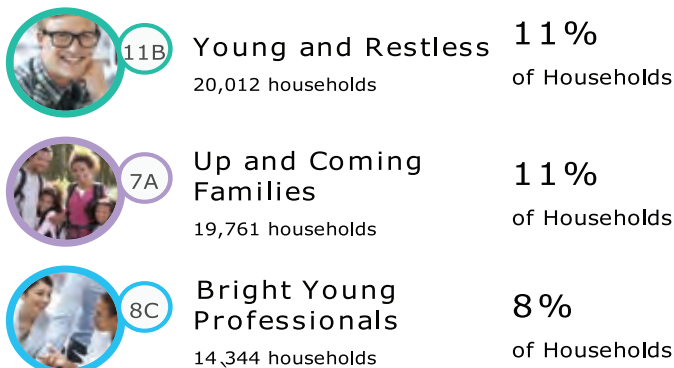
Tapestry LifeModes®

While the region contains a wide variety of the 14 LifeMode groups, the lifestyles of those in the City of Raleigh and the 27606 ZIP code are more closely aligned to illustrate these millennial characteristics:

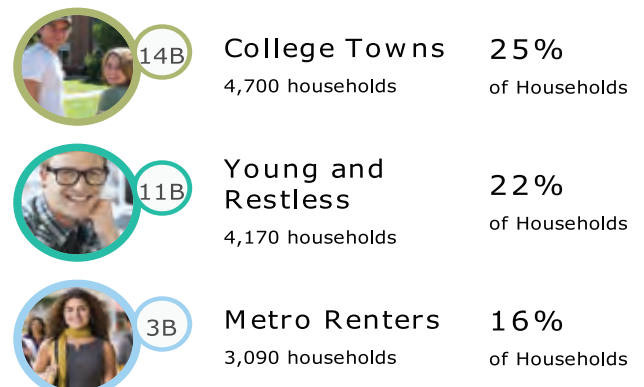
Tapestry Segments

The differences begin to emerge between the City of Raleigh and the 27606 ZIP code, with the top segments defining the lifestyles, needs, and preferences of the corridor.

City of Raleigh



27606 Zip Code



Source: ESRI and Rose Associates

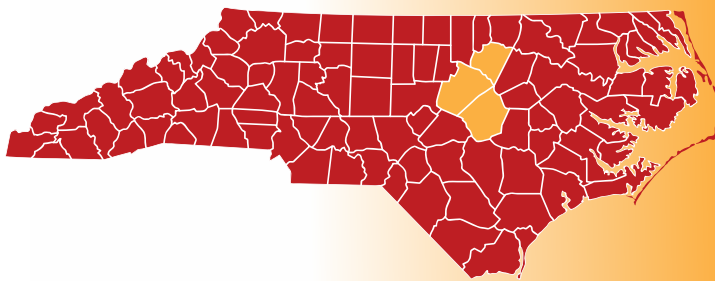
Economic Considerations

Development strategy begins with understanding the local labor market and the community's economic base. With that understanding, economic development organizations may focus on any, or all, of the following four primary areas: attraction, business retention/expansion (BRE), small business and entrepreneurship (SBE) and tourism. The influence of the University provides opportunities in the SBE and tourism areas, as graduate students commercialize research and innovation, and visitors from around the globe come to the campus.

Labor and Employment

The data below shows regional employment growth in all sectors from January 2016 to January 2017. Local employment is assessed by many data points, including educational attainment for job readiness and the employed population.

RALEIGH MSA | Total Non-farm Employment | January 2017



UN Rate | **4.7%**
 Total Non-farm | **602,500**
 Monthly Change | **(-12,000) -2.0%**
 Yearly Change | **(16,700) 2.9%**

Over-the-Month Employment Change			Over-the-Year Employment Change		
Industry	Change		Industry	Change	
Mining, Logging, & Construction	-900	-2.5%	Mining, Logging, & Construction	1,200	3.6%
Manufacturing	0	0.0%	Manufacturing	0	0.0%
Trade, Transportation, & Utilities	-3,000	-2.7%	Trade, Transportation, & Utilities	4,200	4.0%
Information	-100	-0.5%	Information	900	4.4%
Financial Activities	0	0.0%	Financial Activities	1,400	4.6%
Professional & Business Services	-3,500	3.0%	Professional & Business Services	4,300	4.0%
Education & Health Services	-700	-1.0%	Education & Health Services	1,700	2.4%
Leisure & Hospitality	-3,000	-4.4%	Leisure & Hospitality	1,300	2.0%
Other Services	0	0.0%	Other Services	700	3.0%
Government	-800	-0.8%	Government	1,000	1.1%

Source: N.C. Department of Commerce

Educational Attainment

The threshold issue related to employment is educational attainment. This determines the readiness of the local workforce, as the correlation between education, employment, and income is well documented. Estimates from the N.C. Department of Commerce suggest that within Wake County, nearly 92 percent have graduated from High School and 48.3 percent of the population over age 25 has at least a bachelor's degree. The impact of the university and its adjacent Centennial Campus has a strong influence on the corridor. The University Master plan shows projections of further expansion into other disciplines of studies.

Economic Base

The dynamics of population characteristics and the local economy influence land use, real estate markets, and economic development strategies. Other factors, such as education also influence workforce, wages, income, and consumer expenditures. Economic Base Analysis is used to determine what drives the local economy and determines real estate demand. The underlying theme suggests that jobs drive demand for real estate. In other words, for every base industry job that is created, a multiplier effect increases overall employment. This, in turn, increases both population and income benefiting from such job growth. There are two types of jobs: those that export their goods and services outside the community (also referred to as basic employment); and those that service the local community (otherwise referred to as non-basic or service employment). The corresponding growth in jobs, population, and income relates to demand for housing and various commercial uses of real estate.

Defined by traditional Standard Industry Classification (SIC) or the more recent North American Industrial Classification (NAICS), the employment "location quotient" (LQ) identifies which industry sectors contribute the greatest local job and economic growth. This is a ratio of the county percentage of employment as compared to U.S. employment. The sectors within the county with LQ greater than 1 demonstrate higher than U.S. averages, thus the primary drivers of the local economic base and overall job growth. The chart below highlights Wake County's leading industries that have the greatest economic impact, and those that provide the highest percentage of employment (top three of each are in bold):

Economic Base Industry Sectors NAICS 2015	Wake County	
	LQ	% Employment
22 - Utilities	1.18	0.55%
23 - Construction	1.22	6.63%
42 - Wholesale Trade	1.03	5.12%
44-45 - Retail Trade	1.03	13.60%
54 - Professional & Technical Services	1.54	11.23%
55 - Management of Companies & Enterprises	1.32	2.45%
56 - Administrative & Waste Services	1.40	10.42%
51 - Information	1.93	4.49%
53 - Real Estate & Rental/ Leasing	1.16	2.04%
71 - Arts, Entertainment, & Recreation	1.00	2.45%
72 - Accommodation & Food Services	1.10	11.05%

NOTE: Another sector with a large percentage of employment in Wake County: 62 - Healthcare & Social Assistance - 12.3%

Source: U.S. Bureau of Labor Statistics and Rose Associates

Business & Industry

There are an estimated 32,957 business establishments in Wake County per second quarter 2016 estimates from the Bureau of Labor Statistics. Aside from the sectors of the economy, the size or stage of each company is a factor when determining employment growth and its relationship to real estate. The large majority of establishments in Wake County contain less than 250 employees. The major employers (2500+) in Wake County represent a diverse range of both goods and services-producing sectors, two of which are adjacent to the Avent Ferry corridor (**bold**):

Employer	Number of Employees
State of North Carolina	24,083
Wake County Public Schools	18,554
IBM Corporation	10,000
WakeMed Health & Hospitals	8,422
North Carolina State University	7,876
Cisco Systems Inc.	5,500
Rex Healthcare	5,300
SAS Institute Inc.	5,232
GlaxoSmithKline	4,200
Lenovo	4,200
NC DHHS (Dix Campus)	3,800
Duke Energy	3,700
Wake County Government	3,692
City of Raleigh	3,673
Fidelity Investments	2,900
Wake Technical Comm. College	2,547

Source: Wake County Economic Development



Tourism

As demonstrated in the Economic Base analysis, retail trade, accommodation, and food services contribute significantly to the percentage of local employment (25 percent of Wake County). Major employers, including medical and technology centers, and the university, bring visitors from around the globe for education, research, events, and business opportunities.

The Avent Ferry corridor is surrounded by assets attracting visitors and bringing expenditures into the area, which include: award-winning attractions and events, well-known parks and gardens, golf, Lake Johnson, and many other recreational options.

Millennials

Based upon reports from Eventbrite, Millennials value experience over “stuff” and are inclined to spend money on unique restaurants, arts, exhibits, social activity, live events, concerts, plays, festivals, and races promoted on social media. Increasing ease of mobility for this generation equals increased success and support of these activities.

Baby Boomers

On the other end of the age spectrum, Patrick Mason of Carolinaliving.com evaluates the impact of tourism on the local economy, particularly those nearing or in retirement. Per their annual report, the transient leisure segment or “turbo-tourist,” estimated to be six million visitors to the Carolinas annually, are here exploring with investment and relocation motivations. These affluent, educated families visit and tour numerous destinations as part of their exploration mission. They reserve way in advance, spend more, stay longer, and return more frequently on average. Beyond a \$2,000 to \$10,000 visit or vacation, there’s a “turbo-effect” when they relocate and/or acquire a second home, investing \$250,000 to over a million in the first year. Each new household creates 1.9 jobs locally. Then, the turbo-effect kicks in again, as these new homeowners begin entertaining, on average, six friends and family groups a year, some of whom, like birds-of-a-feather, will also relocate or invest here. A third turbo-effect ices the economic cake as the research consistently reports that as many as 14 percent “say” they plan to move or launch a business, bringing intellectual capital, investing millions, and creating thousands of new jobs across the Carolinas.

Using lifestyle and educational themes to create must-see, must-visit experiences of mass appeal are targeted to the modern and connected visitor. The targeted area around the Mission Valley Shopping Center is the ideal catalyst location for a regenerated building site – containing basic needs, ethnic and diverse food items and crafts, goods, fresh fruits and vegetables, jewelry, pottery, pet food, spices, social gathering spaces– with coffee, wine, craft beer, live music, and food trucks.

The Avent Ferry corridor could become the beneficiary of this dynamic, through diverse work and lifestyle options for both Millennials and Baby Boomers. In addition, future developments should consider lodging opportunities for Millennials.

Community at a Glance City of Raleigh

KEY FACTORS

444,271

Population

33.2

Median Age

2.38

Average Household Size

\$55,191

Median Household Income

EDUCATION

8%

No High School Diploma

16%

High School Graduate

27%

Some College

49%

Bachelor's/Grad/Prof Degree

BUSINESS



23,189
Total Businesses



330,763
Total Employees

EMPLOYMENT

73%

White Collar

13%

Blue Collar

15%

Services

6.2%

Unemployment Rate

TAPESTRY SEGMENTS



11B

Young and Restless

20,012 households

11%

of Households



7A

Up and Coming Families

19,761 households

11%

of Households



8C

Bright Young Professionals

14,344 households

8%

of Households

INCOME



\$55,191

Median Household Income



\$32,113

Per Capita Income



\$54,211

Median Net Worth

HOUSEHOLDS BY INCOME

The largest group: \$50,000 - \$74,999 (16.7%)

The smallest group: \$200,000+ (5.5%)

Bars show deviation from Durham County

Indicator	Value	Difference	
<\$15,000	11.0%	-2.1%	
\$15,000 - \$24,999	9.9%	-0.9%	
\$25,000 - \$34,999	10.6%	-0.8%	
\$35,000 - \$49,999	13.8%	+0.3%	
\$50,000 - \$74,999	16.7%	+0.5%	
\$75,000 - \$99,999	12.6%	+0.8%	
\$100,000 - \$149,999	14.0%	+0.4%	
\$150,000 - \$199,999	5.9%	+0.8%	
\$200,000+	5.5%	+1.1%	

RACE & ETHNICITY

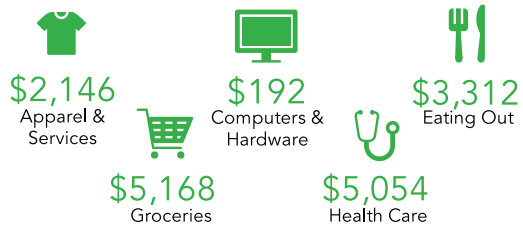
The largest group: White Alone (56.65)

The smallest group: Pacific Islander Alone (0.05)

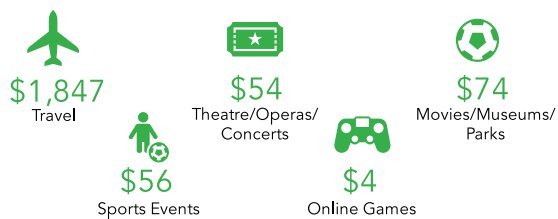
Bars show deviation from
Durham County

Indicator	Value	Difference	
White Alone	56.65	+10.51	
Black Alone	28.75	-8.92	
American Indian/Alaska Native Alone	0.47	0	
Asian Alone	5.19	+0.31	
Pacific Islander Alone	0.05	-0.01	
Other Race	6.00	-1.85	
Two or More Races	2.88	-0.04	
Hispanic Origin (Any Race)	11.90	-1.62	

ANNUAL HOUSEHOLD SPENDING



ANNUAL LIFESTYLE SPENDING



Community at a Glance ZIP Code 27606

KEY FACTORS

46,240
Population

28.4
Median Age

2.29
Average Household Size

\$41,616
Median Household Income

EDUCATION

9%
No High School Diploma

13%
High School Graduate

26%
Some College

52%
Bachelor's/Grad/Prof Degree

BUSINESS

1,496
Total Businesses

18,565
Total Employees

EMPLOYMENT

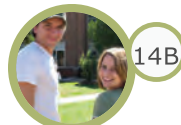
70%
White Collar

12%
Blue Collar

18%
Services

4.9%
Unemployment Rate

TAPESTRY SEGMENTS



14B

College Towns
4,700 households
25% of Households



11B

Young and Restless
4,170 households
22% of Households



3B

Metro Renters
3,090 households
16% of Households

INCOME

\$41,616
Median Household Income

\$27,999
Per Capita Income

\$13,543
Median Net Worth

HOUSEHOLDS BY INCOME

The largest group: <\$15,000 (18.2%)

The smallest group: \$150,000 - \$199,999 (4.0%)

Indicator	Value	Difference	Bars show deviation from Wake County
<\$15,000	18.2%	+10.0%	
\$15,000 - \$24,999	13.5%	+5.9%	
\$25,000 - \$34,999	12.1%	+3.4%	
\$35,000 - \$49,999	12.1%	-0.1%	
\$50,000 - \$74,999	13.7%	-2.5%	
\$75,000 - \$99,999	11.4%	-2.1%	
\$100,000 - \$149,999	10.6%	-7.6%	
\$150,000 - \$199,999	4.0%	-4.1%	
\$200,000+	4.4%	-2.9%	

RACE & ETHNICITY

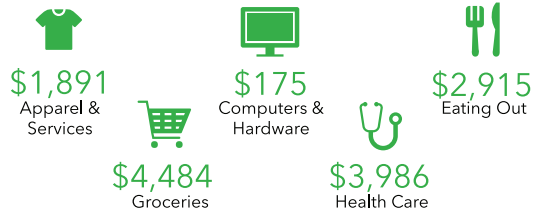
The largest group: White Alone (62.22)

The smallest group: Pacific Islander Alone (0.05)

Bars show deviation from Wake County

Indicator	Value	Difference	
White Alone	62.22	-2.13	
Black Alone	18.24	-2.53	
American Indian/Alaska Native Alone	0.56	+0.07	
Asian Alone	10.89	+4.15	
Pacific Islander Alone	0.05	0	
Other Race	4.86	+0.09	
Two or More Races	3.18	+0.34	
Hispanic Origin (Any Race)	9.42	-0.83	

ANNUAL HOUSEHOLD SPENDING



ANNUAL LIFESTYLE SPENDING



©2017 Esri
Source: Esri, Esri and Bureau of Labor Statistics, Esri and Infogroup
Rose & Associates Southeast, Inc. © 2017



Real Estate Market

According to data collected by the city, there are approximately 1,600 acres within the corridor study area, with approximately 56 properties comprising 107 acres defined as “Soft Sites”, including those that are vacant.

Analyzing real estate markets is as much art as it is science, as the data represents both a snapshot in real time and prevailing real estate trends. Demand for space is driven by several factors including, but not limited to, the local economy and job growth, transportation, infrastructure, land entitlements, and quality of life.

Real estate data is measured by submarkets, which may include specific geographic areas, such as census tracts or ZIP codes. These are important elements when determining local market capture in the context of the larger regional marketplace.

Work Space

The successful recruitment of new businesses results in demand for work space, such as office or industrial buildings. The work environment is changing. The next generation of space reflects the behaviors, attitudes, and design for a new generation of workers. New work environments are less formal structures that are flexible and offer open spaces where workers engaged in technology, research, or advance/precision manufacturing, can collaborate or perhaps be used for light assembly. These structures are frequently used as a recruiting tool. Despite this prevailing trend, market analysts, appraisers, and lenders continue to collect and report data based on traditional product types, including office, industrial, and retail. The focus of workspace environments for the Avent Ferry corridor includes office and retail uses based on our highest and best use analysis.

Office Demand

The economic development emphasis for the industries noted in previous sections point primarily to office uses. Additionally, other industries such as healthcare, education, and professional services diversify the landscape and drive demand for office space where other amenities and complementary uses co-exist, such as restaurants, retail, and housing. The corridor’s location and reputation for shopping and dining adjacent to the campus make the corridor well positioned for such development. The key areas for additional office space include the Mission Valley area, adjacent to the Centennial Campus, and the Gorman Street intersection.

Based upon annual county job growth and an estimated capture rate, square footage demand estimates can be projected using the County’s percentage of employment sectors that correlate with typical office uses. Avent Ferry’s position within the region together with existing office submarket absorption data, suggest a conservative capture rate of 5% of new office related job growth. Based upon current estimates of space demand per employee, this results in estimated annual office space demand of approximately 47,045 square feet.

Office Supply

According to data from REIS, The Raleigh metro region is divided into twelve submarkets. The Avent Ferry corridor is within the Central Wake County submarket, the fourth largest submarket by total inventory (square feet) in the metro region.

The five-year average net absorption in the Central Wake County submarket is 30,000 square feet, with an average submarket capture of 5.6%. There is currently 361,000 square feet available in this submarket. The Dorteia Dix Park includes 1.2 million square feet of office space within 85 buildings, occupied by NC DHHS. The demand driven by this major employer and the Centennial Campus must be considered as well as any planned supply to be added to the corridor.

Work Space Summary

The current economic cycle will continue to drive companies to the southeast in search of lower operating costs, skilled labor, and quality of life characteristics found in this region. Traditional industry clusters—education, healthcare, manufacturing and research—are transforming, developing opportunities for new work environments. As these industries evolve, business leaders are demanding advanced workforce skills, infrastructure, and support services in their location decisions.

The Avent Ferry corridor could emerge as a desirable and viable business location, by adding new Class A office within mixed-use developments complementary to the Centennial Campus. Additional workspace along the corridor would

provide space for future workers, namely Millennials. The preferred locations would include those with good visibility and transportation access, primarily in the Mission Valley targeted area adjacent to Centennial campus.

The implementation of transportation improvements along the corridor to create a central boulevard would connect the existing assets and recreation, while housing and commerce could spark additional private investment. The resulting added daytime population would support the desired restaurants, retail, and other service businesses in the corridor.

Strategies include adopting policies and incentives to support the plan and reduce entitlement uncertainty. A branding/marketing effort should be included to support local and regional economic development.

Office Metro: Raleigh	2012	2013	2014	2015	2016
Total Inventory (Sq. Ft.)	37,529,000	37,536,000	38,428,000	39,648,000	39,964,000
Completions	276,000	145,000	892,000	1,220,000	347,000
Net Absorption	217,000	298,000	708,000	1,235,000	478,000
Total Market Net Absorption	217,000	298,000	708,000	1,235,000	478,000
Total Vacant (Sq. Ft.)	5,893,000	5,602,000	5,786,000	5,771,000	5,609,000
Vacancy Rate	15.7%	14.9%	15.1%	14.6%	14.0%
Asking Rent	\$20.30	\$20.46	\$20.82	\$21.24	\$21.65

Office Submarket: Central Wake Co.	2012	2013	2014	2015	2016
Total Inventory (Sq. Ft.)	3,135,000	3,095,000	3,095,000	3,241,000	3,254,000
Completions	-	-	-	146,000	13,000
Net Absorption	57,000	(30,000)	(62,000)	144,000	41,000
Total Market Net Absorption	217,000	298,000	708,000	1,235,000	478,000
Submarket Capture Rate (% of Total Market)	26%	-10%	-9%	12%	9%
Total Vacant (Sq. Ft.)	335,000	325,000	387,000	389,000	361,000
Vacancy Rate	10.7%	10.5%	12.5%	12.0%	11.1%
Asking Rent	\$20.19	\$20.29	\$20.95	\$21.10	\$21.61

Source: REIS, Inc., 4th Quarter 2016, Rose & Associates

Shopping and Entertainment

The retail industry is dramatically changing and exercising caution as it focuses on profitability over expansion through new store openings. Retail formats are shifting from traditional malls and shopping centers to online sales, mixed-use, and “Main Street” brick and mortar formats. The survey respondents in the Avent Ferry corridor clearly want expanded options for new types of shopping, dining, and entertainment experience.

Retail Demand Dynamics

The demand dynamics for retail differ from office and industrial uses, as demand comes primarily from population, household, and income growth. Incomes throughout Wake County are strong, however, income averages diminish substantially within ZIP Code 27606, which includes the Avent Ferry corridor.

As mentioned in earlier sections of this report, trade areas include several components that determine which retail operators might find adequate demand for their goods/services or retail sales potential. Consumer Expenditures Survey outlines the average dollars spent in major retail segments on an annual basis within each trade area, and assess both demand and supply factors to determine gaps in the market for each segment. The trade area for each of the targeted sites within the corridor was reviewed within 7-minute drive times. As Maps 2.7, 2.9, and 2.11 illustrate, these trade areas substantially overlap, diminishing the opportunities for added retail within each targeted area.

In addition, the volume of automobile traffic is an important factor for the success of retail. Traffic data from the North Carolina Department of Transportation (NCDOT) 2015 indicates that Avent Ferry Road carries 18,000 cars per day at the intersection of Gorman Street and just over 22,000 cars per day near the entrance to Mission Valley Shopping Center, the strongest volume along the corridor. Therefore, Mission Valley traffic counts are stronger in support of regional or destination shopping/entertainment at this location.

2016 Estimates	ZIP Code	City of Raleigh	Wake County
2016 Total Population	46,240	444,271	1,023,520
2016 Median Household Income	\$41,616	\$55,191	\$68,962
2016 Average Household Income	\$65,459	\$78,764	\$91,666
2016 Median Age	28.4	33.2	35.4
2016 Average Household Size	2.29	2.38	2.58

Source: ESRI, Rose Associates

Retail Supply

Regional shopping venues surrounding the area provide goods/services for a wide variety of categories. The Raleigh metro region is comprised of six retail submarkets including two that most directly impact the corridor: Southeast Raleigh and Cary/Southwest Raleigh.

Within these submarkets, the Avent Ferry corridor has two centers providing retail: Mission Valley Shopping Center at the intersection of Avent Ferry Road and Western Boulevard, and the Avent Ferry Shopping Center, at the intersection of Avent Ferry Road and Gorman Street. Data from REIS below highlights these two submarkets totaling close to one million square feet of vacant space in 2016, with rents below \$20.00 per square foot on average. However, these submarkets have strong average capture rates at 38 percent and 32 percent respectively.

Retail Submarket: Southeast Raleigh	2012	2013	2014	2015	2016
<i>Neighborhood and Community Shopping Centers</i>					
Total Inventory (Sq. Ft.)	6,505,000	6,590,000	6,590,000	6,590,000	6,590,000
Completions	76,000	85,000	-	-	-
Net Absorption	148,000	72,000	52,000	52,000	108,000
Total Market Net Absorption	320,000	83,000	500,000	765,000	266,000
Submarket Capture Rate (% of Total Market)	46%	87%	10%	7%	41%
Total Vacant (Sq. Ft.)	665,000	678,000	626,000	574,000	460,000
Vacancy Rate	10.2%	10.3%	9.5%	8.7%	7.1%
Asking Rent	\$19.18	\$19.40	\$19.56	\$20.05	\$19.84

Retail Submarket: Cary/Southwest Raleigh	2012	2013	2014	2015	2016
<i>Neighborhood and Community Shopping Centers</i>					
Total Inventory (Sq. Ft.)	6,247,000	6,247,000	6,378,000	6,444,000	6,444,000
Completions	52,000	0	131,000	66,000	0
Net Absorption	43,000	63,000	148,000	144,000	59,000
Total Market Net Absorption	320,000	83,000	500,000	765,000	266,000
Submarket Capture Rate (% of Total Market)	13%	76%	30%	19%	22%
Total Vacant (Sq. Ft.)	686,000	623,000	606,000	528,000	469,000
Vacancy Rate	11.0%	10.0%	9.5%	8.2%	7.3%
Asking Rent	\$16.31	\$16.71	\$17.07	\$17.43	\$17.99

Source: REIS, Inc., 4th Quarter 2016, Rose & Associates

The substantial available retail inventory and commensurate lease rates within these submarkets suggests that much of the vacant square footage is older, obsolete space that is losing favor against desired newer town center, mixed-use and open “Main Street” concepts.

Retail Gap

Employment in retail industry sectors (Retail Trade and Food Services) totals 24.65 percent in the county, providing jobs and bringing consumer expenditures to the region. Supply and demand for retail is defined by the actual dollar expenditures within each category measured against demand within a given trade area. Negative gaps (surplus) suggest oversupply or a market where customers are drawn in from outside the area, while positive gaps (leakage) indicate areas of opportunity for additional retail within a given trade area. Where gaps exist in select categories or subcategories, the potential expenditures must meet the income thresholds of per square foot sales. Details of surplus and leakage in the three key trade areas can be found in the table below.

The large expenditure surpluses, together with the supply of retail space within the submarkets serving the Avent Ferry corridor, indicate few gaps for additional large scale retail supply, until or unless there is a major shift in population growth through housing or job growth. However, within each industry group there are subsectors that do provide some opportunities in a limited number of formats. The subsectors demonstrating retail gaps include:

- Building materials, garden equipment, and supplies
- General merchandise and other merchandise stores
- Specialty food & food services

Existing restaurants and retailers in the corridor could differentiate the experience by converting existing space to more desirable updated mixed-use formats, while repositioning the retail mix to include these subsectors. The success of retail along Avent Ferry is dependent upon property redevelopment momentum, together with local population, and income growth. The adjacency of new or revitalized projects to existing demand generators would create and drive synergy between residents, students, employees, and visitors.

Assuming the corridor’s position in capturing a 15 percent share of the retail submarkets, demand estimates suggest the potential for 416,198 additional square feet of retail, including that which is replaced through redevelopment and/or relocation.

Key Area	Industry Summary	7-Minute Drive Time		
		Demand	Supply	Retail Gap (Surplus)
Mission Valley @ Avent Ferry	Total Retail Trade	\$627,896,939	\$811,611,046	(\$183,714,107)
	Total Food & Drink	\$69,383,833	\$228,270,532	(\$158,886,699)
Gorman Street @ Avent Ferry	Total Retail Trade	\$502,037,077	\$724,121,727	(\$222,084,650)
	Total Food & Drink	\$55,895,750	\$97,899,562	(\$42,003,812)
Lake Johnson @ Avent Ferry	Total Retail Trade	\$488,005,181	\$927,240,548	(\$439,235,367)
	Total Food & Drink	\$54,619,723	\$104,104,134	(\$49,484,411)

Source: ESRI, Rose Associates

Retail Summary

Avent Ferry's neighborhood shopping destinations are largely supported by drive-by traffic and local residents. The corridor can support additional retail uses, limited only by physical constraints, land costs, and competition from neighboring shopping venues. Consideration must be given to retail scale and size, as larger retail formats continue to downsize and are driven to denser urban markets. Therefore, retail should be considered in mixed-use formats, with office and/or residential uses integrated. These could include both redevelopment of existing single story retail sites, and new space, interconnected with other uses. Locating new or revitalized retail within the targeted areas of Mission Valley and the Gorman Street intersection will increase the potential for future growth in the resident and daytime (employment) populations.

The corridor provides a unique opportunity to provide new experiential environments that appeal to both Millennials and Baby Boomers. This includes incorporating events at the Azalea Garden, and nearby parks.



Future Shopping and Entertainment

"Millennials are expected to drive growth in suburban shopping as they age, form families, and seek places to live as affordability concerns rise in urban areas. Developers of suburban destinations want to create mixed-use districts that have an urban feel and are walkable."

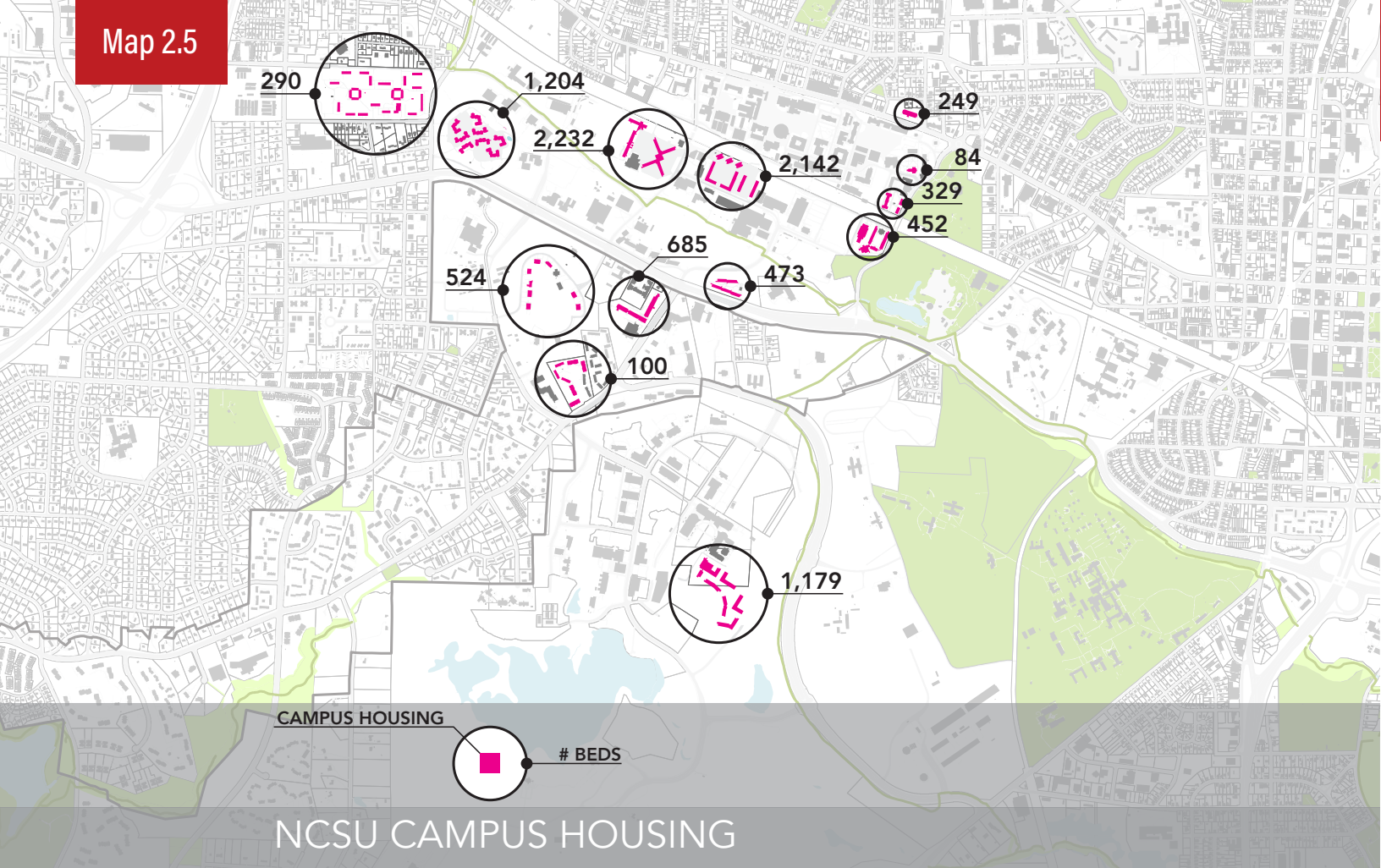
*Garrick Brown,
Cushman & Wakefield
@ ICSC Convention May 2016*

Retail Demand

15% submarket capture
10 year build-out

Annual
41,620 sq. ft.

10 Years
416,198 sq. ft.



Housing

The Raleigh metro area is a popular destination as represented by its growth rate over the last 15 years. In 2000, the City of Raleigh had 297,715 people. The latest 2016 estimates suggest that the population grew by almost 50 percent and added nearly 147,000 people. During the same period, ZIP code 27606 grew to 46,240 people, dominated by students. In addition to students, the city has successfully attracted working class young families, empty nesters, and retirees with a desire to live in a community with the amenities of an urbanized area. Many communities strive to have some balance of residential and commercial/retail activities to provide services readily accessible to those living in the community.

Census data suggests that the City of Raleigh has added 64,210 housing units since 2000, while new housing growth was slower in the Avent Ferry corridor. About half of its housing stock is renter-occupied versus owner-occupied, with a predominance of student housing.

The status of the housing units along the Avent Ferry corridor suggests some possible options to consider in the future that would increase the diversity of the housing stock. The City of Raleigh has three primary Tapestry® Segments that comprise the majority of millennial households: Young and Restless, Up and Coming Families, and Bright Young Professionals. By contrast, the 27606 ZIP code intensifies this dynamic by its student population together with singles and young families, with most households in these segments: College Towns, Young and Restless, and Metro Renters. According to data from N.C. State University, there are 8,934 total beds in its student housing program, with 1,309 in the Avent Ferry corridor. The market must consider this young, socio-economically diverse population, as the majority of this demographic are one- or two-person households.

Housing Market

Recent housing data from Triangle Multiple Listing Services, Inc. provides monthly market statistics to gauge the regional housing market. Per its February 2017 report, Wake County new listings were up 9.4 percent to 2,041. Inventory shrank 7.9 percent to 3,122 units. Prices moved higher as the median sales price was up 8.2 percent to \$265,000. Days on market decreased 13 percent to 47 days. The month's supply of inventory was down 14.3 percent to 1.8 months, indicating that demand increased relative to supply.

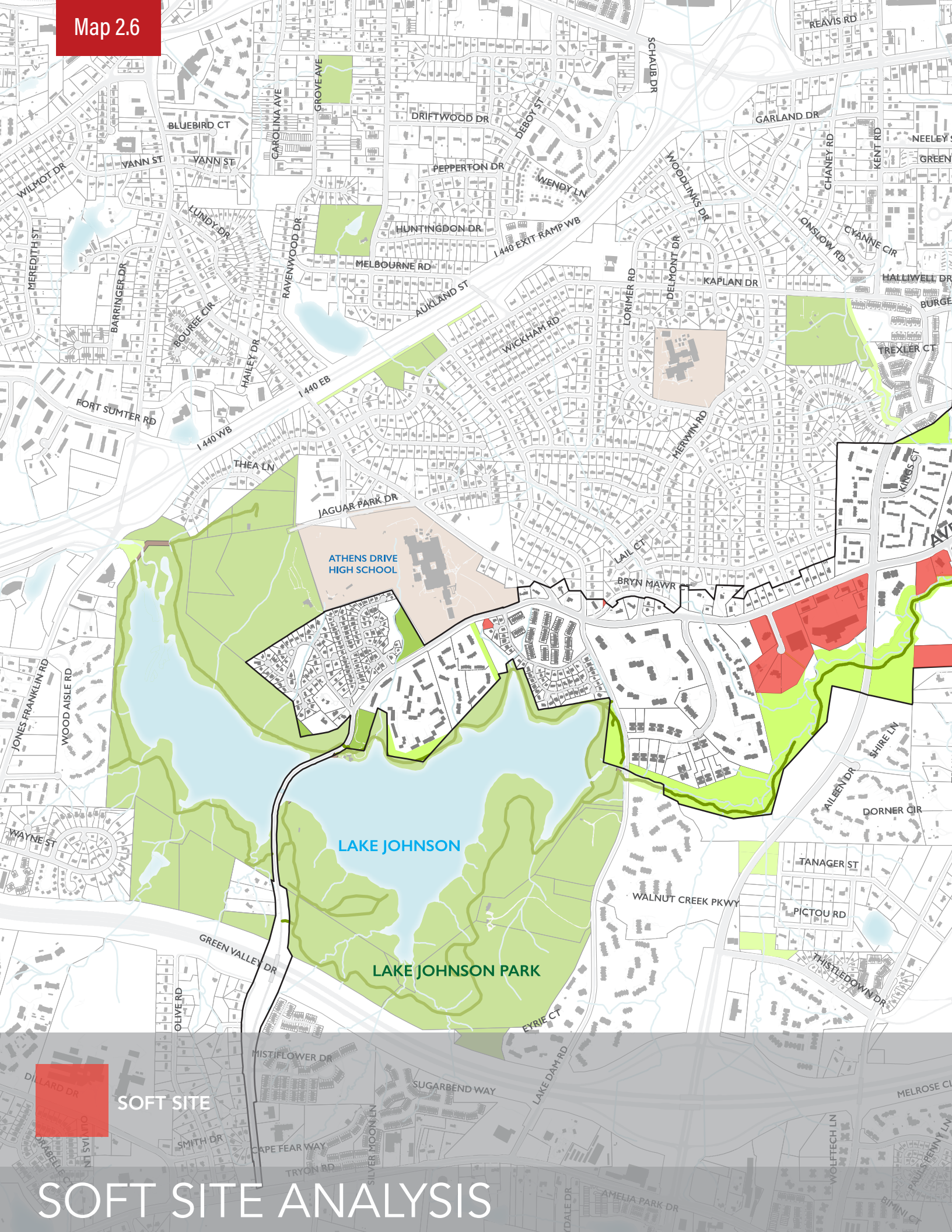
Future Housing Considerations

Based upon job and population growth, as well as household size estimates, housing demand for the corridor is estimated to be 557 units over the next 10 years. The information gathered and shared about citizen preferences for housing and other development options available suggests that apart from mobility and transportation concerns, area residents are ready for some new housing choices along the Avent Ferry corridor. Therefore, some housing alternatives might deserve consideration. Preferences or opinions also include more or better amenities, such as retail, dining, and entertainment opportunities adjacent to housing.

The two largest population groups, in terms of housing demand nationally, are the Millennials and the Baby Boomers/early retiree groups. The Millennials are primarily renters; both because they don't have the funds to buy a house and, for some, because they are making a lifestyle decision to rent rather than own. They want to live where they can walk to things, where a lot of others just like them live and where arts, culture, restaurants, and clubs are available. They are fueling the "back to the city" movement in this country. Downtowns and access to vibrant mixed-use and town centers are what they seek.

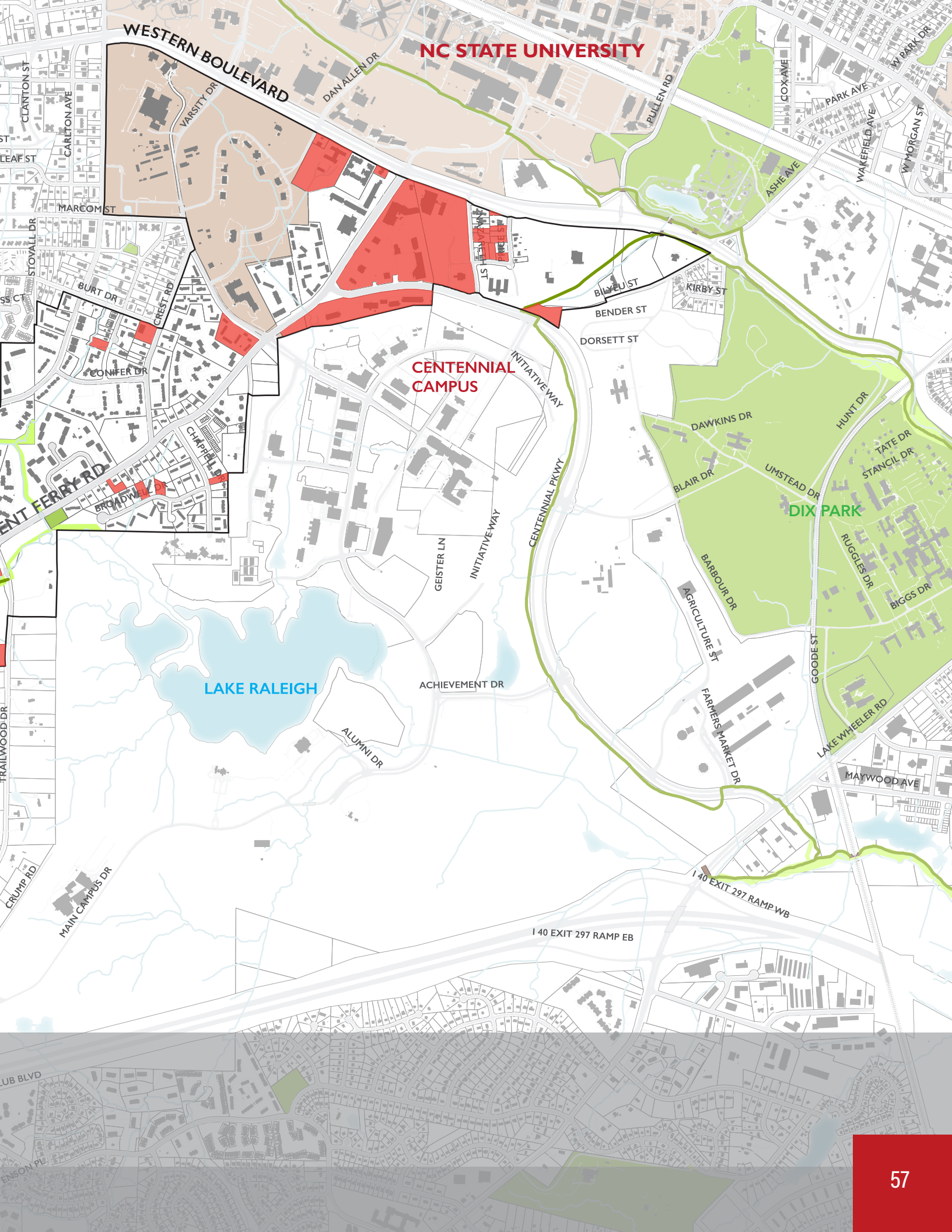
Soft Sites

Soft sites are parcels, or groups of parcels, that have a reasonable likelihood of being redeveloped if public sector actions and/or market trends conspire to raise the value that can be realized through new development versus maintaining the status quo. Soft sites include vacant sites, sites which are "under built," and sites with vacant or deteriorated structures. The identification of soft sites leads to a better understanding of the redevelopment potential of an area. However, it should be understood that many soft sites may not actually redevelop due to idiosyncratic factors such as, property owner preferences, brownfield conditions, or other characteristics not knowable without more detailed investigation.



SOFT SITE

SOFT SITE ANALYSIS



NC STATE UNIVERSITY

CENTENNIAL CAMPUS

DIX PARK

LAKE RALEIGH

Development Strategies

Targeted Sites

The length and character of the Avent Ferry corridor changes from urban commercial to suburban residential. Three targeted catalyst areas were identified to build place-based strategies for economic development to support current and future land uses. They are bookended by the destination-oriented center at Mission Valley, focused on employment, dining, and entertainment; and Lake Johnson, focused on recreation and housing. The central location at Gorman Street continues to serve the corridor residents and the surrounding area with a convenience-oriented center focused around a grocery anchor.

Targeted Site Themes

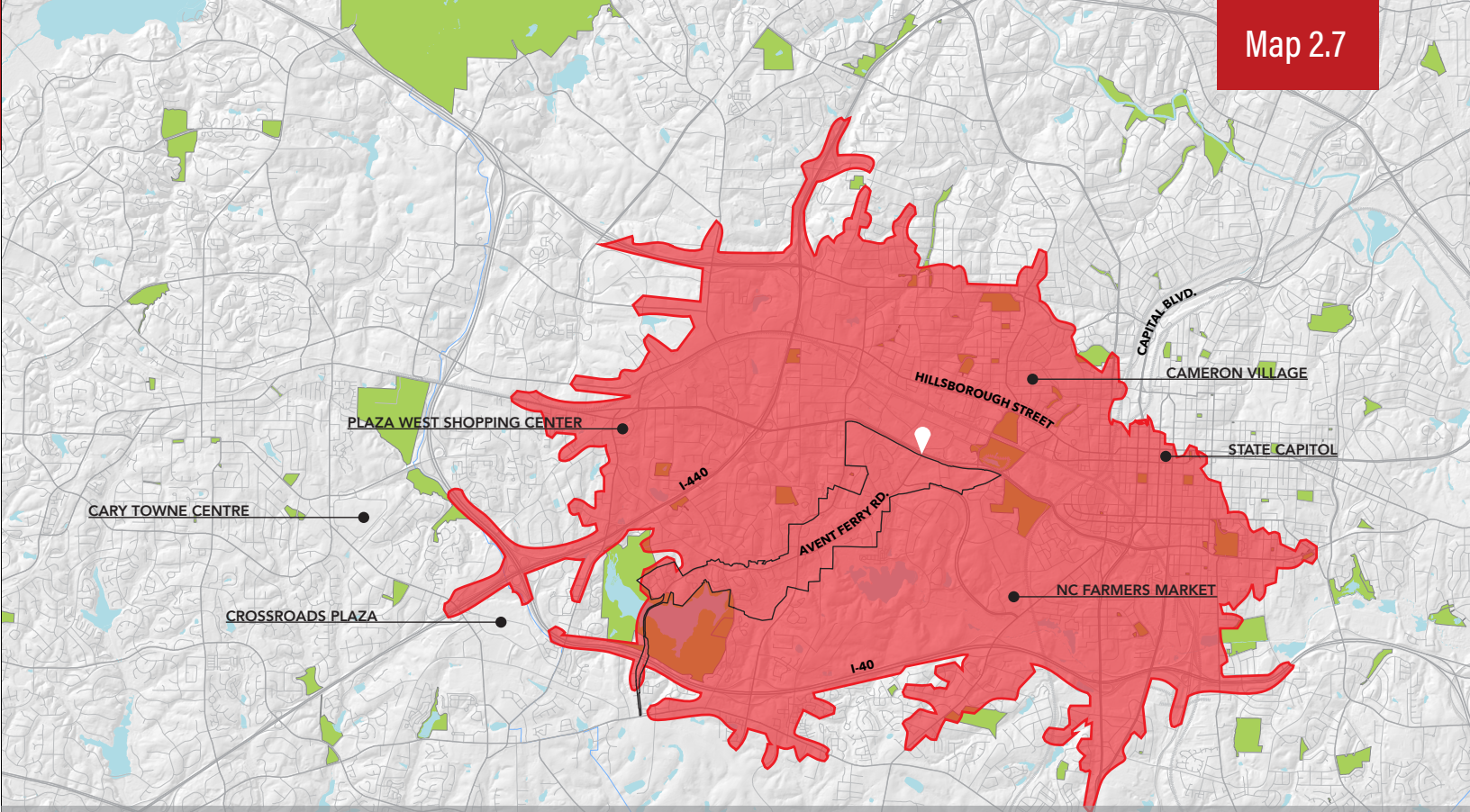
Mission Valley – Mixed-Use Regional Destination (high-density)

On the southern edge of the business and civic district of Downtown Raleigh, this area is a key center of influence, close to NCSU, parks, public facilities, and the downtown business and government core. This area has potential as a suburban retrofit, with new, more urban mixed-use office and retail development. Redevelopment could include replacing Mission Valley's existing buildings, and/or filling the gap between the existing Mission Valley Shopping Center and the fast food and convenience-oriented retail located on Western Boulevard, one-quarter mile to the west.

Strategies should include:

- Devising a master plan that includes a mix of uses at the Mission Valley Shopping Center and Capital Broadcasting sites, with the Azalea Garden as its central park.
- Upgrading and renovating the Mission Valley Shopping Center to attract a wider variety of food and beverage options, for example, breweries, international markets, restaurants, and local health food stores.
- Integrating flexible work space, housing, and lodging.
- Investing in multimodal transportation infrastructure that provide access to the Mission Valley area from NCSU, Centennial Campus, Dix Park, and points south along the corridor.





7-MINUTE DRIVE TIME FROM FOCUS AREA

MISSION VALLEY DRIVE TIME ANALYSIS



TARGETED SITE



GREENWAY

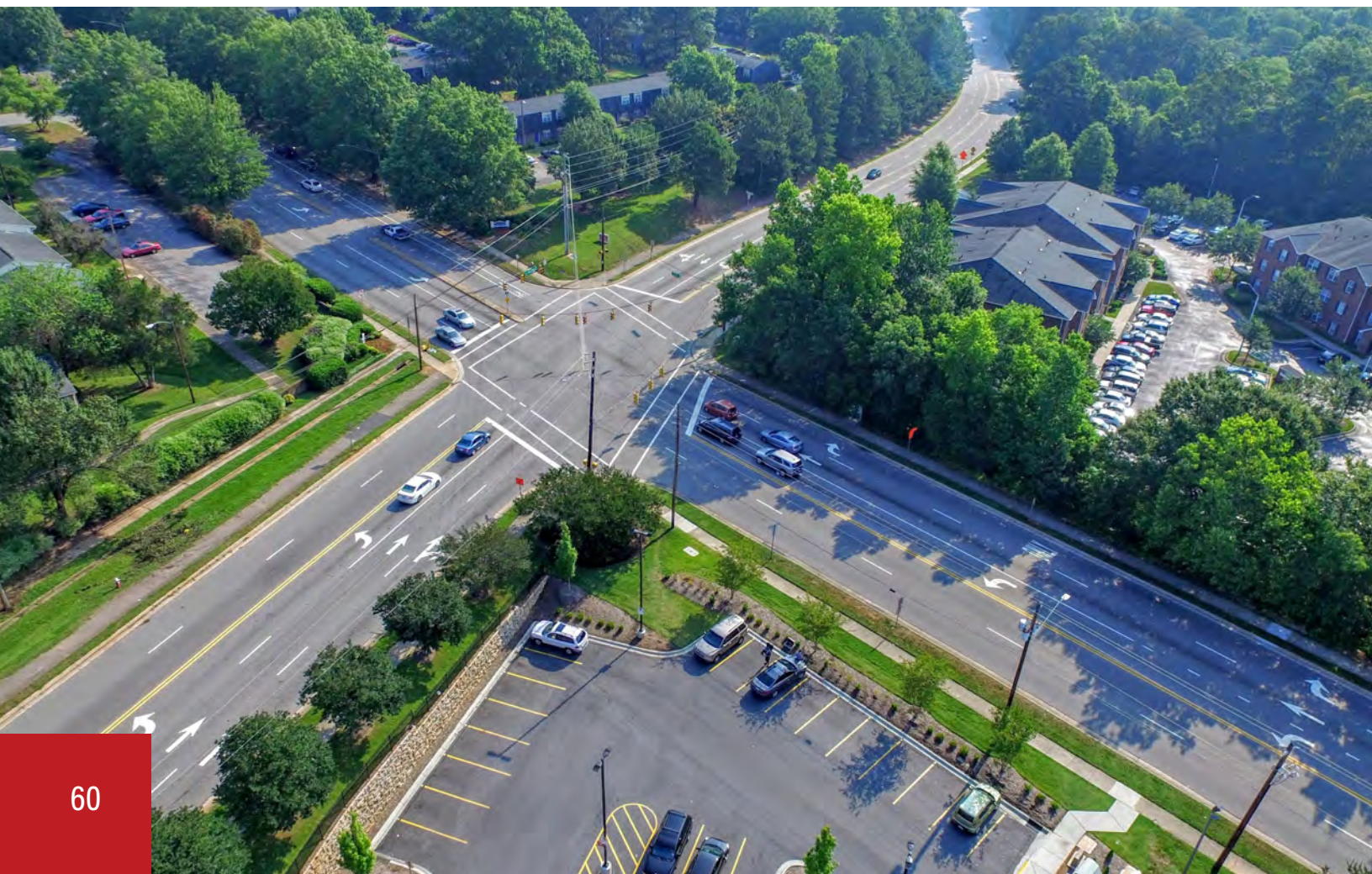
MISSION VALLEY SHOPPING CENTER

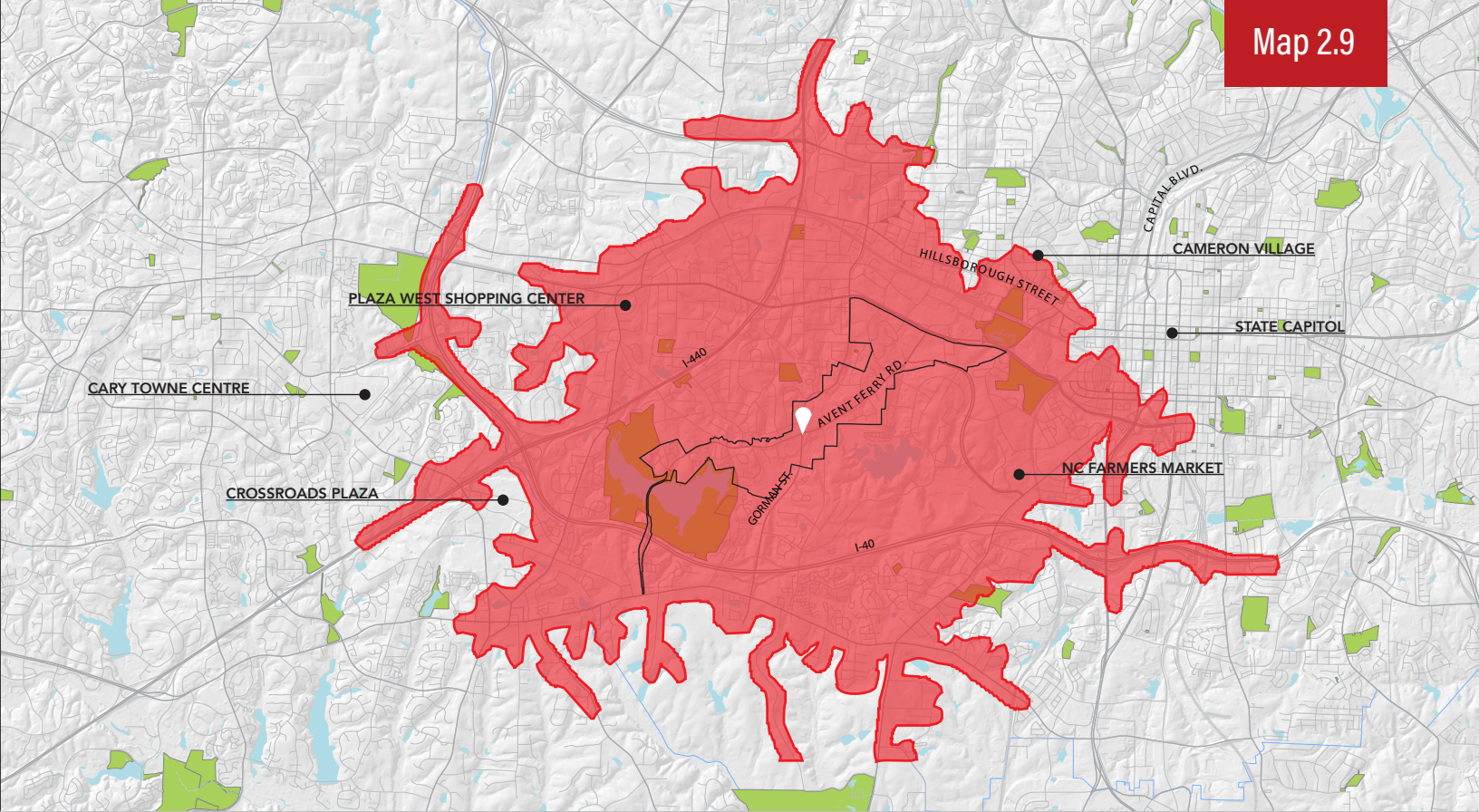
Gorman Street - Lifestyle Center Mixed-Use (mid-density)

Repositioning of this area would create the opportunity for additional retail uses and other new housing options. Such redevelopment would also strengthen existing stores and businesses in this section of the corridor and provide opportunities for others to relocate to this "central place."

Strategies would include:

- Devising a master plan that includes the Aventura Shopping Center and NSCU (former and existing Greek housing) sites.
- Upgrading and renovating the Aventura Shopping Center to integrate more traditional work space and housing options for a walkable, mixed-use environment.
- Providing connectivity from redeveloped areas to existing greenways and areas for enhanced bike and pedestrian network.





7-MINUTE DRIVE TIME FROM FOCUS AREA

GORMAN STREET MIXED USE CENTER DRIVE TIME ANALYSIS



TARGETED SITE

GREENWAY

GORMAN STREET MIXED USE CENTER

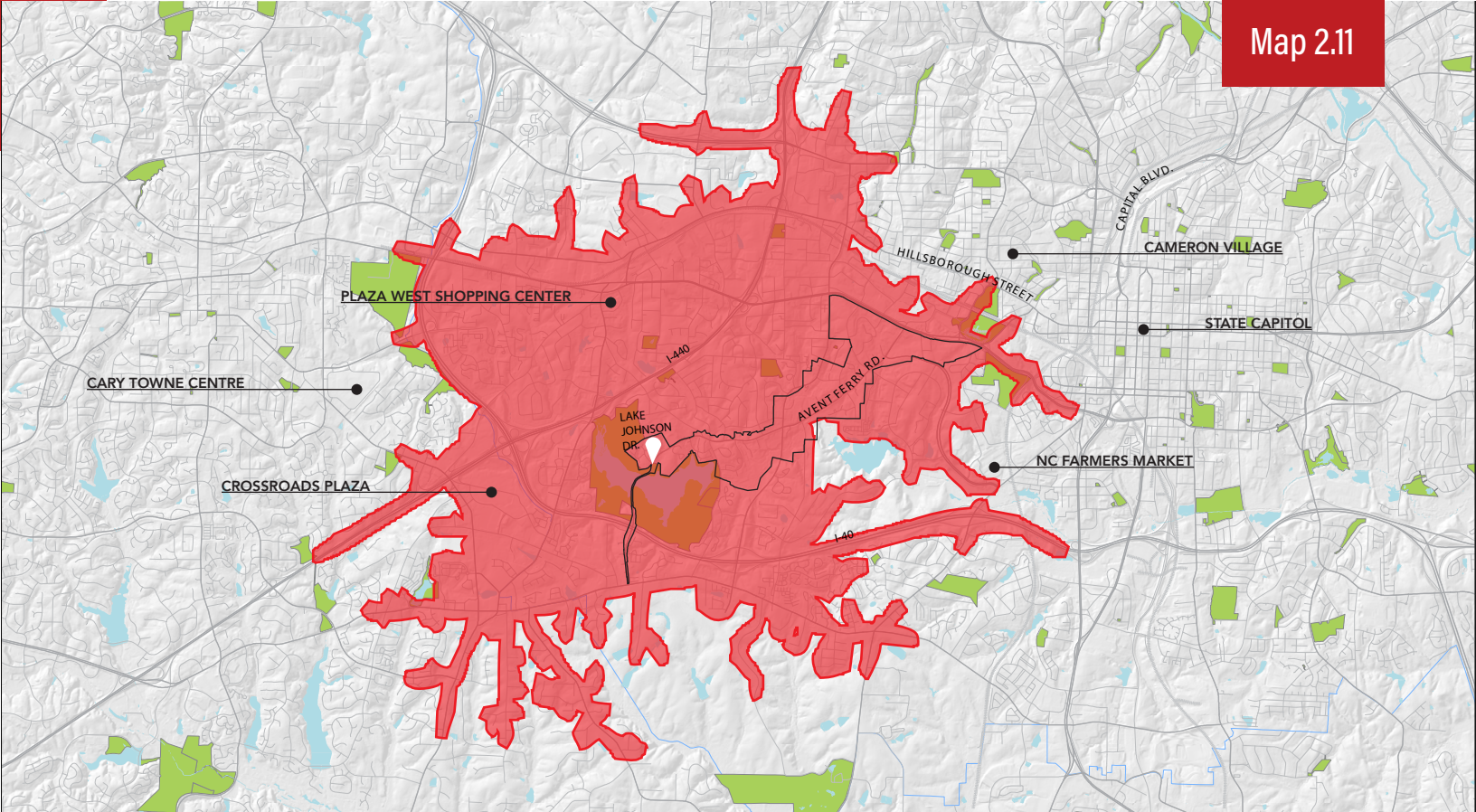
Lake Johnson - Recreational Area Infill Development (low-density)

Lake Johnson Park is bifurcated by Avent Ferry Road and is a popular regional and local recreational destination that also serves as a significant ecological resource. The park includes the Thomas G. Crowder Woodland Center.

Strategies would include:

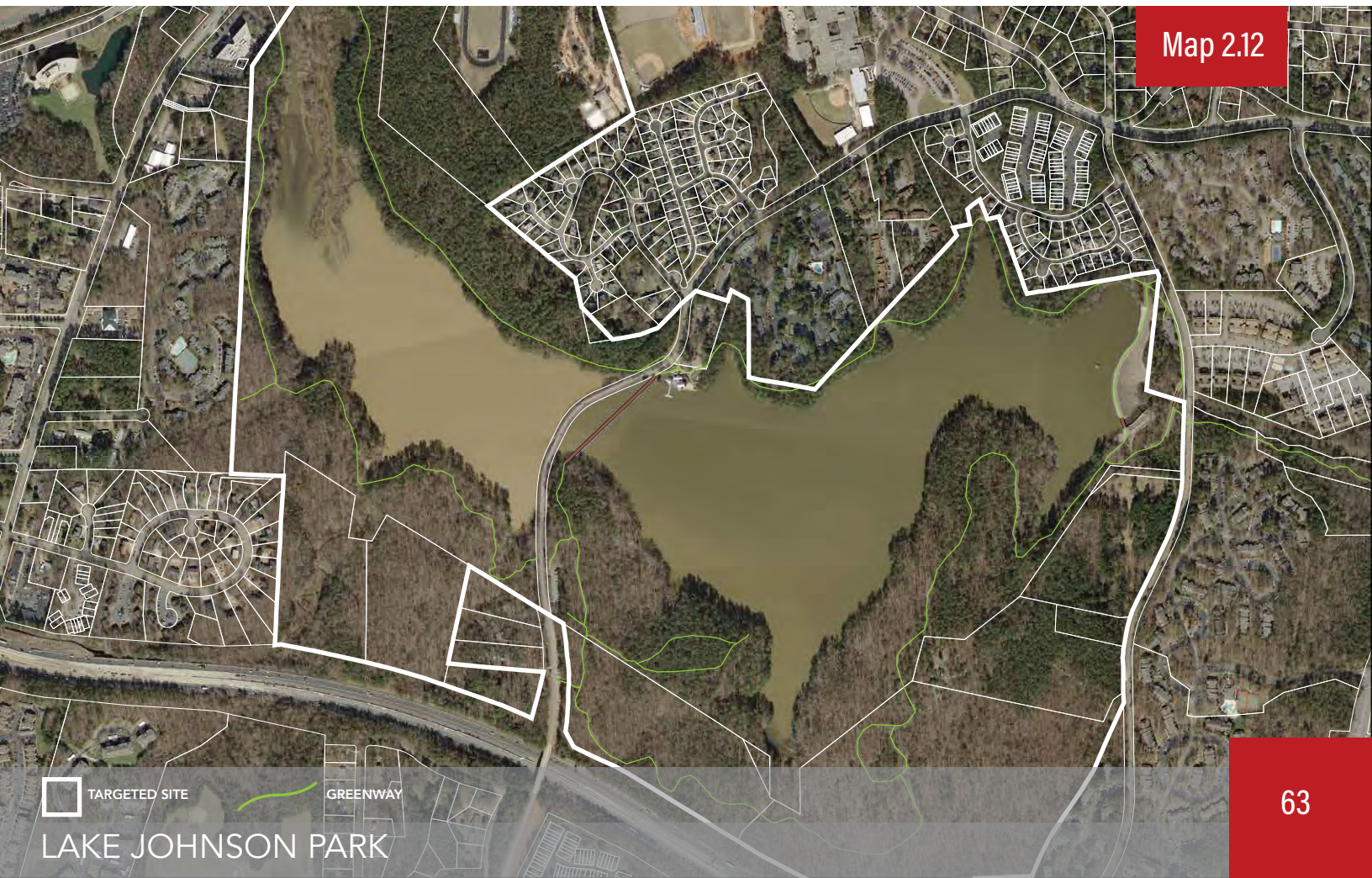
- Transportation and park infrastructure investments should provide improved, yet appropriately scaled access to the Woodland Center and other destinations within Lake Johnson Park.
- Improving Greenway access and wayfinding to Lake Johnson Park from Dix Park.





7-MINUTE DRIVE TIME FROM FOCUS AREA

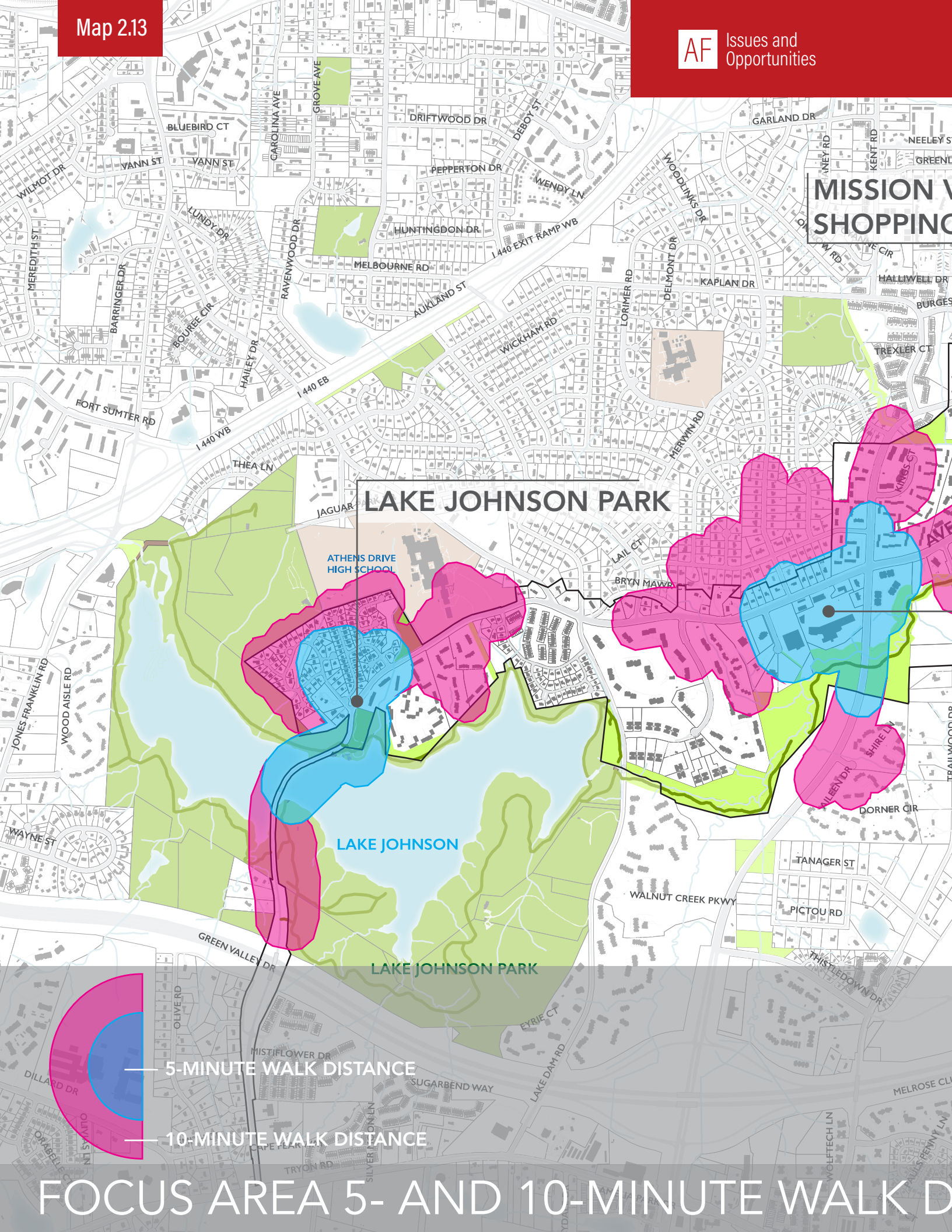
LAKE JOHNSON DRIVE TIME ANALYSIS

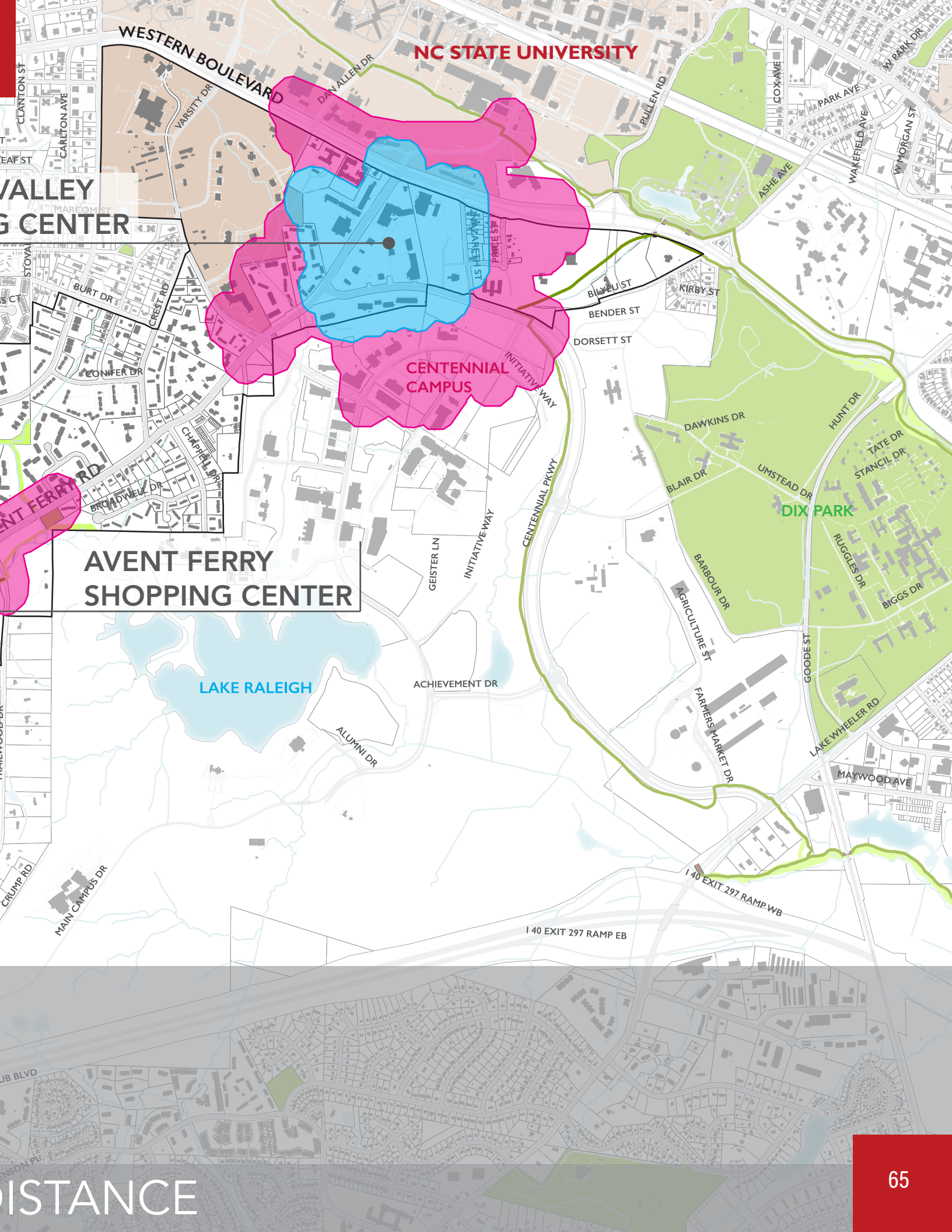


TARGETED SITE

GREENWAY

LAKE JOHNSON PARK





Comprehensive market analysis allows for answering the five questions posed at the beginning of this section:

Who is the customer?

While the primary customers in the Avent Ferry area are Millennials, strategies to attract and retain older generations should also be among the considerations for the corridor.

What businesses and uses are appropriate?

Shopping, dining, entertainment, and job opportunities should be the highest priorities in order to support housing lifestyle options for these groups.

Where do people want to be?

The key to a successful corridor must include ease of access and movement, as well as attractive place-making in order to improve and enhance the experience for residents and visitors.

When and how should the city and community take action?

Improving the safety and aesthetic appeal of the corridor is the first step. This will demonstrate the community's commitment to the corridor and attract private investment. Housing is the natural progression of job growth.

Why does it matter?

Public infrastructure improvements can be a catalyst for private investment. Providing additional lifestyle options and experiences can help "sell" the corridor. It can also attract new investment, providing jobs and economic mobility for all its citizens and a stable tax base for the city.

3 Urban Design Analysis

The consultant team conducted a detailed inventory of urban design issues and opportunities in the corridor. This inventory includes such topics as building size and character, landform, land uses, and experiential elements such as lighting, perceived safety, and identity. This inventory confirms and supplements the information provided through the public input opportunities previously summarized.

Identity

Establishing a widely recognizable corridor within the city is a key opportunity for the Avent Ferry visioning process. This is often referred to as placemaking, or the process and philosophy of capitalizing on a local community's assets, inspirations, and potential with the intention of creating public spaces that promote people's health, happiness, and wellbeing. In part, placemaking is accomplished by implementing improvements to address the issues and accentuate the assets described below.

Before an identity can be built, the existing character must be understood. Today the corridor is

generally non-descript and characterized by aging strip malls and residential structures common to cities throughout the country. Visually, there is little distinguishing the corridor from many other arteries in the city. However, the corridor contains assets entirely unique to the Avent Ferry area including NCSU, Lake Johnson, and a diverse residential community. A challenge will be to establish a modern identity celebrating these assets without simply replicating current development styles being constructed elsewhere.

Some strategies to reinforce Avent Ferry Road's identity include establishing consistent landscaping and signage standards, or defining standards for building size, location, and quality. A "livability" identity could be defined by providing safe, comfortable, and efficient access to homes, shopping, and recreation assets via all modes of transportation.



Corridor Character - North to South

Within the Corridor's three-mile length are a number of distinct community characters. The northern portion is dominated by NCSU and Mission Valley Shopping Center. Higher automobile and pedestrian traffic give this area a more active urban environment. Buildings in the area, discussed in more detail below, are dated and give the area a "worn-out" feel. Large expanses of surface parking and a lack of large maturing trees contribute to an impression of emptiness, despite the area's high activity level.

The northeast portion of the study area is influenced by Holy Name of Jesus Cathedral, Capitol Broadcasting and a quiet pocket of single family residential homes in the Kirby-Bilyeu neighborhood. The newly-constructed cathedral, pending extension of Pullen Road to Centennial Parkway, and potential mixed-use development around Capitol Broadcasting are changing the character of this area and will likely introduce many more visitors and residents into the neighborhood. Despite its adjacency, this area feels detached from the activity around Mission Valley. Opportunities to link these neighbors into a cohesive mixed-use district should be considered during the visioning process. Impacts of such an approach on the Kirby-Bilyeu neighborhood must also be weighed.

The corridor's central portion, extending from approximately Varsity Drive to Gorman Street, is composed primarily of multifamily residential units with a few single-family homes. The high concentration of residents keeps sidewalks active, while a lower volume of automobile traffic leads to higher speeds. This area also includes the floodway and wetlands of Walnut Creek. This large natural area, along with the landscaped grounds surrounding the multifamily buildings create a more relaxed atmosphere compared to the Mission Valley area.

Moving south from Gorman Street, traffic volume is lower, the number of road lanes is reduced, and informal stands of trees line the street. These

factors give the area a notably quieter, residential feel. Lake Johnson Park anchors this end of the corridor and provides relaxing, natural recreation opportunities.

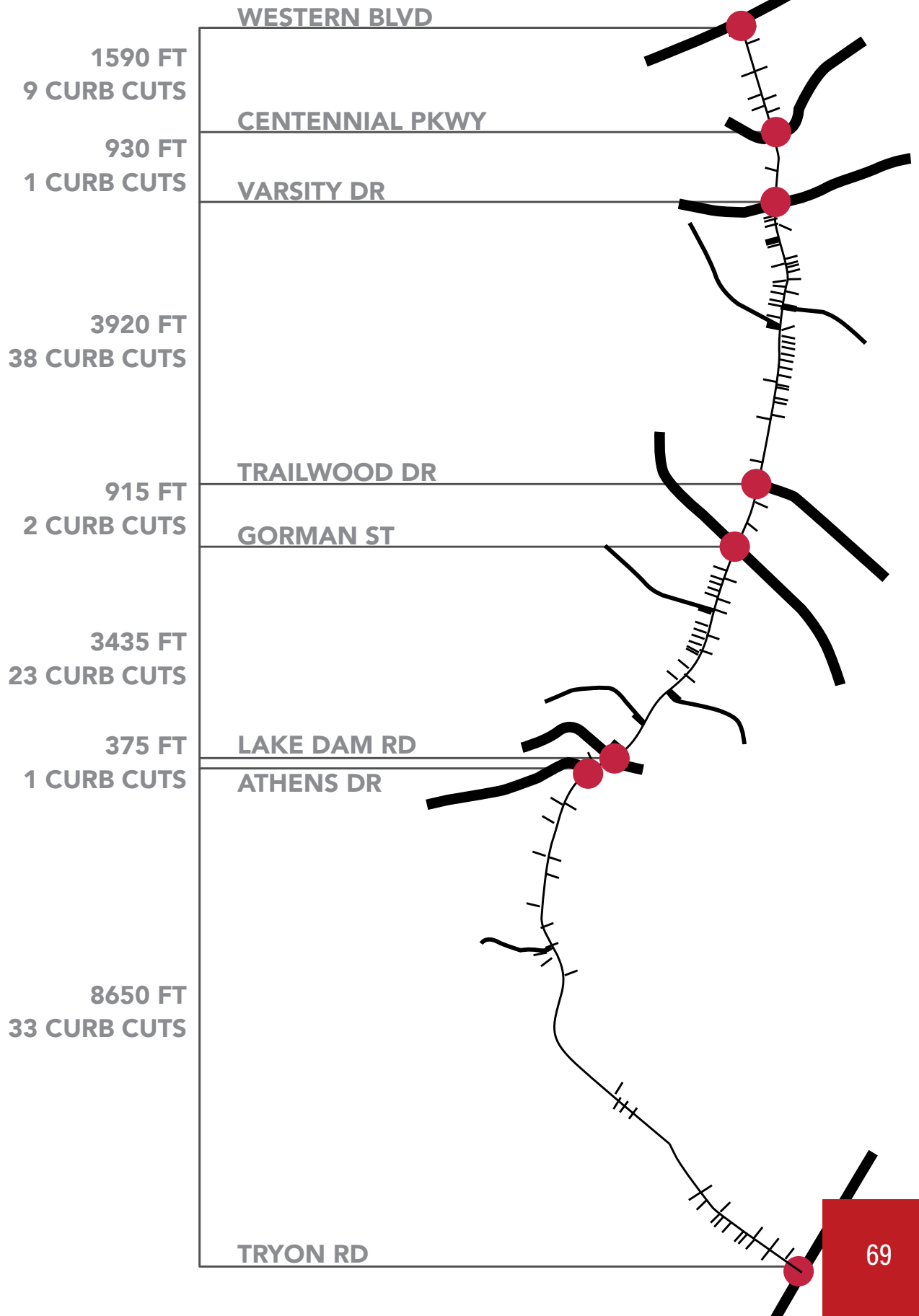
Building Stock

The majority of buildings in the corridor, both commercial and residential were constructed in the 1940s, 1960s and 1980s and their design is typical of the period. The commercial buildings located at Mission Valley Shopping Center and Avent Ferry Shopping Center, are typical strip malls with associated out-buildings. Both centers are primarily single-story with the exception of a two-story structure at Mission Valley. Due to topography, this structure functions as two, grade-separated, single story storefronts. The buildings are reaching the end of their expected life span, but maintain high rental occupancies. Retailers within the center are typical of a multi-ethnic, university-serving population. Large surface parking lots serve these complexes. Mission Valley Shopping Center and its immediate neighbors create a more urban character than the rest of the corridor. For this reason, much denser development, including taller buildings, should be considered.

Immediately east of Mission Valley is Capitol Broadcasting (WRAL), followed by the Holy Name of Jesus Cathedral, and finally the Kirby-Bilyeu neighborhood. The Capitol Broadcasting property includes a one- to two-story studio and office building and an expansive azalea garden. The single family homes between the studios and cathedral are older and slated for redevelopment as mixed-use properties. The cathedral itself is a new, monumental building surrounded by a large amount of surface parking. The Kirby-Bilyeu neighborhood consists of a small grouping of single-family homes, predominantly constructed in the 1940s.

NCSU's Centennial Campus is a modern, university complex in close proximity to the corridor and consists of large, modern laboratory and office facilities. The buildings are high quality, recent construction and in some cases are of international

INTERSECTION SPACING



design significance (Hunt Library). The campus hosts a number of private companies and its resident and day-use population exerts a significant influence on the Avent Corridor. The buildings are three- to five-stories in height and are screened from view by rows of dense vegetation. The University also operates student housing facilities on the west side of Avent Ferry Road, across from Mission Valley Shopping Center. These buildings are two- to six-stories in height and highly visible from the road.

Multifamily residential developments dominate the corridor from Centennial Parkway to Gorman Street. These structures were mostly constructed in the early 1960s and are approaching the end of their useful life cycle. The apartments are two- to three-stories in height and present dated façades. The developments are laid out in typical garden apartment style and are generally set well back from the sidewalk and distributed in low-density configurations with substantial surface parking and ample green space in between. Housing demand in the area suggests additional housing density is desired. As redevelopment occurs in these areas, consideration must be given to its future form and impact to the corridor's character, as it has the potential to change significantly from its current appearance. For example, setbacks from the right-of-way could be maintained to keep consistent with the suburban feel of the area, or buildings could become taller and located close to the sidewalk. The latter would give the segment a much more urban feel. The community should decide through this visioning process which style of development is most appropriate.

South of Gorman Street, the area is characterized by single-family housing on the north side and newer apartment complexes on the south side. The single-family neighborhoods are stable, with houses that are generally in good condition. The apartments on the south side are partially obscured

from view and do not negatively affect the wooded character of this corridor segment. Due to overall condition and neighborhood stability, alterations or reconfiguration of these areas is not prudent or necessary at this time.

Topography

Topography directly adjacent to Avent Ferry Road presents significant challenges when considering opportunities to expand the sidewalk or street section. The existing difference between sidewalk grade and the elevation of adjacent properties exceeds 10 feet in many locations. At Mission Valley the difference in elevation ranges from negative 12 feet to positive 10 feet just along the length of the university's Avent Ferry Complex of student housing. This elevation change occurs within just the first 15 feet from the edge of sidewalk. Similar elevation differences extend along the length of the corridor. Particularly notable is the elevation change on the south side of the road at Avent Ferry Shopping Center.

While challenging, the elevation differences offer interesting opportunities for redevelopment at the shopping centers. Such elevation changes allow for relatively easy incorporation of underground parking below street facing retail storefronts. This type of arrangement could facilitate more active streetscapes at these locations.

Connectivity

Workshop attendees, survey respondents, consultants, and city staff universally agreed that improved connectivity, whether that be by auto, transit, bicycle, or foot, should be a primary focus of the visioning process. The focus should be on moving people safely and efficiently in whatever mode of travel they prefer to use. Particularly challenging, will be finding ways to incorporate all modes of travel into the existing right-of-way.

Narrow right-of-way and existing topography may restrict options for fully accommodating all modes of travel within a single street cross-section throughout the entire corridor. The design process must carefully balance the needs of each user group as efficiently as possible. Opportunities for alternate routes for bicycle and pedestrians outside the primary right-of-way should be explored, including new streets internal to larger developments and greenway connections.

Greenway connections and interconnections between neighborhoods should be maximized wherever possible. Analysis of the existing road, sidewalk, and greenway network indicates many locations where interconnections could be made, consequently reducing the overall travel demand within the Avent Ferry right-of-way.

Many private developments along the south and east side of Avent Ferry Road back directly to the greenway corridor. Developers and property owners should consider providing semi-public access to the greenway from their properties, especially in light of their proximity to Dix Park. In some cases, such connections would require bridging Walnut Creek. In order to facilitate these greenway connections, the city should explore cost sharing opportunities to expedite bridge construction and greenway connections.

The greenway itself is a significant and unrealized opportunity for the corridor to connect to the larger city as a whole. The city has made substantial investment in the greenway network and now provides over 125 miles of paved pathways. The system links to major retail and recreation centers around the city and direct access to that network is shown to boost property values when provided. Opportunities to enhance the visibility of the existing greenway access points and provide critical neighborhood connections should be identified in the visioning process.

Pedestrian Experience

Sidewalk quality was a common complaint in the public workshops and was confirmed by the consultant's assessment. Given the number of people using the corridor's sidewalks, they are woefully undersized throughout most of the corridor. Additionally, the sidewalks are located immediately adjacent to the back of curb or separated from the street by grass lawn less than 5 feet wide. This proximity to traffic lanes, combined with the speed at which vehicles travel on Avent Ferry Road, contributes to an unsafe and uncomfortable walking experience.

Uneven pavement, curb cuts, and insufficiently sized bus stops with few amenities also contribute to an unpleasant pedestrian experience and safety concerns. The sidewalks, both concrete and asphalt, are uneven, cracked, and broken in many locations along the corridor. Adjacent vegetation encroaches on the sidewalk in many locations and is reducing the useable widths. The city and responsible property owners should better maintain vegetation along the corridor.

The sidewalk is interrupted by a large number of curb cuts including driveways, shopping center entrances, and housing complex access drives. Each of these cuts presents a potential for automobile-pedestrian conflicts. Where possible, the number of curb cuts and driveways should be reduced and/or consolidated. Where large multifamily and commercial properties are redeveloped, internal street networks with side street access should be considered.

Popular bus stops must be redesigned to accommodate a large number of transit riders. At peak times, queues frequently block sidewalks. Expanded stops with improved amenities should be implemented to alleviate queuing problems.

Jaywalking is a major safety issue throughout the corridor. Particularly concerning locations include uncontrolled crossings by pedestrians between student housing and Mission Valley Shopping Center, at the bus stops near Crest Road, and in the area around Brigadoon Drive. The crossings near Crest Road are particularly concerning due to short sight distances, elevation changes in the roadway, and accelerating traffic as it moves south. At all of these locations, crossing pedestrians are often caught standing in the turn lane while automobile traffic travels past at full speed. Nighttime crossings in poor light exacerbate the danger at these locations. Facilities to alleviate these dangers, such as striped crosswalks, mid-block crossings, medians providing pedestrian refuge, and additional signaled intersections should be evaluated.

Cyclists Experience

Cycling infrastructure on Avent Ferry Road is insufficient to meet the demand for safe cycling facilities. Wide and comfortable cycling lanes are provided between Gorman and Athens Drive. However, topography and fast-moving automobile traffic reduce cycling comfort and perceived safety in this portion of the corridor. Despite high demand for cycling facilities generated by the NCSU student population, no cycling lanes or off-street facilities exist anywhere north of Gorman Street. This lack of bicycle lanes puts cyclists and automobiles in direct conflict. Furthermore, topography along the corridor exacerbates cycling discomfort and safety concerns, as drivers have difficulty judging cyclists' speeds as they transition from fast downhill sections to slow uphill climbs. Finally, the numerous driveways and curb cuts create additional potential for bicycle/auto conflicts. The corridor planning process should evaluate means to provide separated bicycle lanes to fully protect riders from automobile traffic. Where right-of-way widths do not permit such infrastructure, other means, including striped bicycle lanes, internal street networks, and improved greenway access should be evaluated.

Perceived Safety

Interviews and informal discussion with corridor users and residence revealed that some areas of the corridor feel unsafe. However, public safety records indicate the area's crime rate is relatively low, suggesting that the perception may be due to the physical and visual characteristics of the corridor. Opportunities to improve lighting and sightlines generally increase pedestrian activity and perceived safety and should be explored throughout the corridor.

Landscape and Street Trees

The vegetated landscape is a driving factor behind the corridor's varying character. Dense vegetation lining the southern portion of the corridor screens adjacent housing and creates a pleasant atmosphere. However, landscape condition and presence of street trees along the remaining corridor is inconsistent. As a result, many of the area's sidewalks are void of shade, especially in hot afternoons on southern exposures. Adding street trees will mitigate heat and provide a more comfortable pedestrian experience. The planning process should identify opportunities to improve the appearance and function of the area's landscape, including street trees, ornamental plantings, and natural areas.

The design process must also consider the concentration of power and telecommunication lines that limit opportunities to install street trees and restrict tree height to small ornamental trees. To establish an impressive corridor of street trees, options to relocate power lines underground should be evaluated. In some locations, primarily along the corridor south of Gorman Street, installation of street trees would require removal of existing rows of dense vegetation. As these rows provide ample screening of adjacent neighborhoods, their removal may be undesirable. The planning process should consider focusing street tree installation in areas void of existing trees.



Street Amenities

















Street amenities including furniture and signage are uncoordinated throughout the corridor and do not reflect the unique community and innovative activities occurring in the area. Additionally, street furniture provided at bus stops is insufficient in some locations. The planning process should establish a family of design standards that would unify the entire corridor, but clearly reinforce the character of the corridor as it changes from north to south.

Power and Telecom Lines

Overhead power and telecommunication lines and their associated poles are present throughout the corridor. In addition to being visually unappealing, this infrastructure prevents the installation of large maturing street trees. Relocating these utilities below ground would significantly improve the corridor's visual appearance, provide opportunity for street and pedestrian lighting on freestanding decorative poles, and allow establishment of large trees along the corridor as it changes from north to south.

SHEET 1: PULLEN ROAD - MISSION VALLEY DISTRICT

INVENTORY

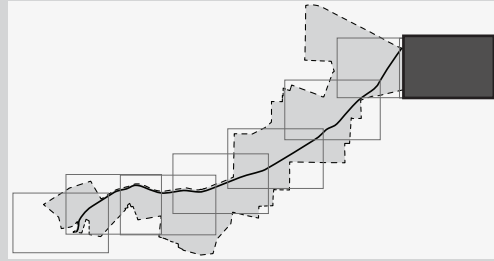
-  Study Boundary
-  Existing right-of-way
-  Powerlines
-  Traffic light
-  Pedestrian signal
-  Crosswalk
-  GoRaleigh bus stop
-  GoTriangle bus stop
-  Bus stop with shelter
-  Median / Pedestrian refuge
-  Existing street tree
-  Adjacent tree canopy
-  Lighting on poles
-  Bicycle infrastructure
-  Greenway
-  Floodplain/Flood Fringe

ISSUES AND CONSTRAINTS

- ① No existing crosswalk and/or common jaywalking location
- ② Crosswalk with low visibility
- ③ Ramps not ADA compliant
- ④ Narrow sidewalk: 5 feet or less
- ⑤ Above ground control cabinets
- ⑥ Large trees outside and on edge of right-of-way
- ⑦ Trees underneath and/or growing into power lines
- ⑧ Irrelevant curb cut
- ⑨-5' Topography that may impact roadway expansion and approximate elevation change within 50 feet of right-of-way

NOTES

1. Pullen extension will allow additional traffic volume along Centennial Parkway. This may alleviate some traffic congestion at the Avent Ferry-Western Boulevard intersection and will provide a multi-use path connection to the Greenway system.



GREENWAY CONDITION VARIES.
SOME LOCATIONS ARE
CRUMBLING AND HAVE
AWKWARD CROSS SLOPES

PULLEN ROAD EXTENSION
AND CONNECTION TO
CENTENNIAL PKWY.
ESTIMATED COMPLETION
SUMMER 2018

















BILYEU ST CONNECTION TO
WESTERN BLVD TO BE CLOSED.
MULTI-USE PATH CONNECTION
TO BE MAINTAINED.

**HOLY NAME OF
JESUS CATHEDRAL**

KIRBY-BILYEU

SHEET 2: WESTERN BLVD. TO CENTENNIAL PKWY. - MISSION VALLEY DISTRICT

INVENTORY

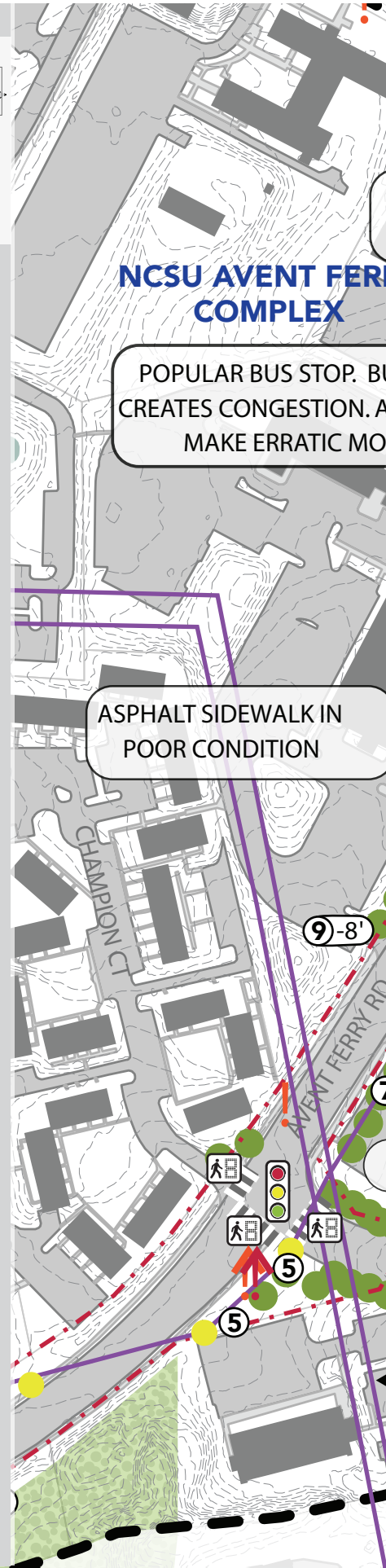
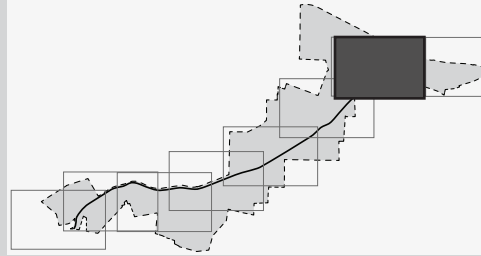
-  Study Boundary
-  Existing right-of-way
-  Powerlines
-  Traffic light
-  Pedestrian signal
-  Crosswalk
-  GoRaleigh bus stop
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-  Bus stop with shelter
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NOTES

















1. Topography is extremely challenging along this segment of the corridor. Opportunities for R.O.W. expansion or curb widening are restricted.
2. Planned egress into pedestrian tunnel will make crossing of Western Boulevard safer and easier, but it does not facilitate access to the shopping center across Avent Ferry. Options to safely get pedestrians across Avent Ferry should be explored.

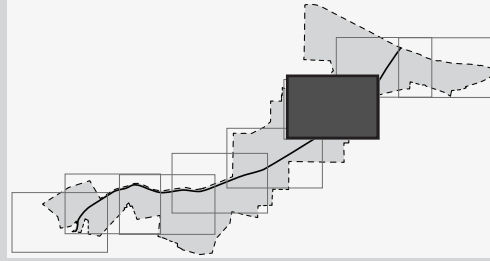


3. Options to reduce surface parking and increase revenue generating density at Mission Valley should be explored.
4. Market forces are moving the single family lots east of Nazareth Street towards higher intensity development. Opportunities to develop this area and Mission Valley in a unified way should be explored.
5. Commercial storefronts are set far back from the right of way. Future development scenarios should evaluate opportunities to set buildings closer to the street in an effort to create a more pedestrian friendly environment and active streetscape.

SHEET 3: VARSITY DRIVE - MULTIFAMILY DISTRICT

INVENTORY

-  Study Boundary
-  Existing right-of-way
-  Powerlines
-  Traffic light
-  Pedestrian signal
-  Crosswalk
-  GoRaleigh bus stop
-  GoTriangle bus stop
-  Bus stop with shelter
-  Median / Pedestrian refuge
-  Existing street tree
-  Adjacent tree canopy
-  Lighting on poles
-  Bicycle infrastructure
-  Greenway
-  Floodplain/Flood Fringe



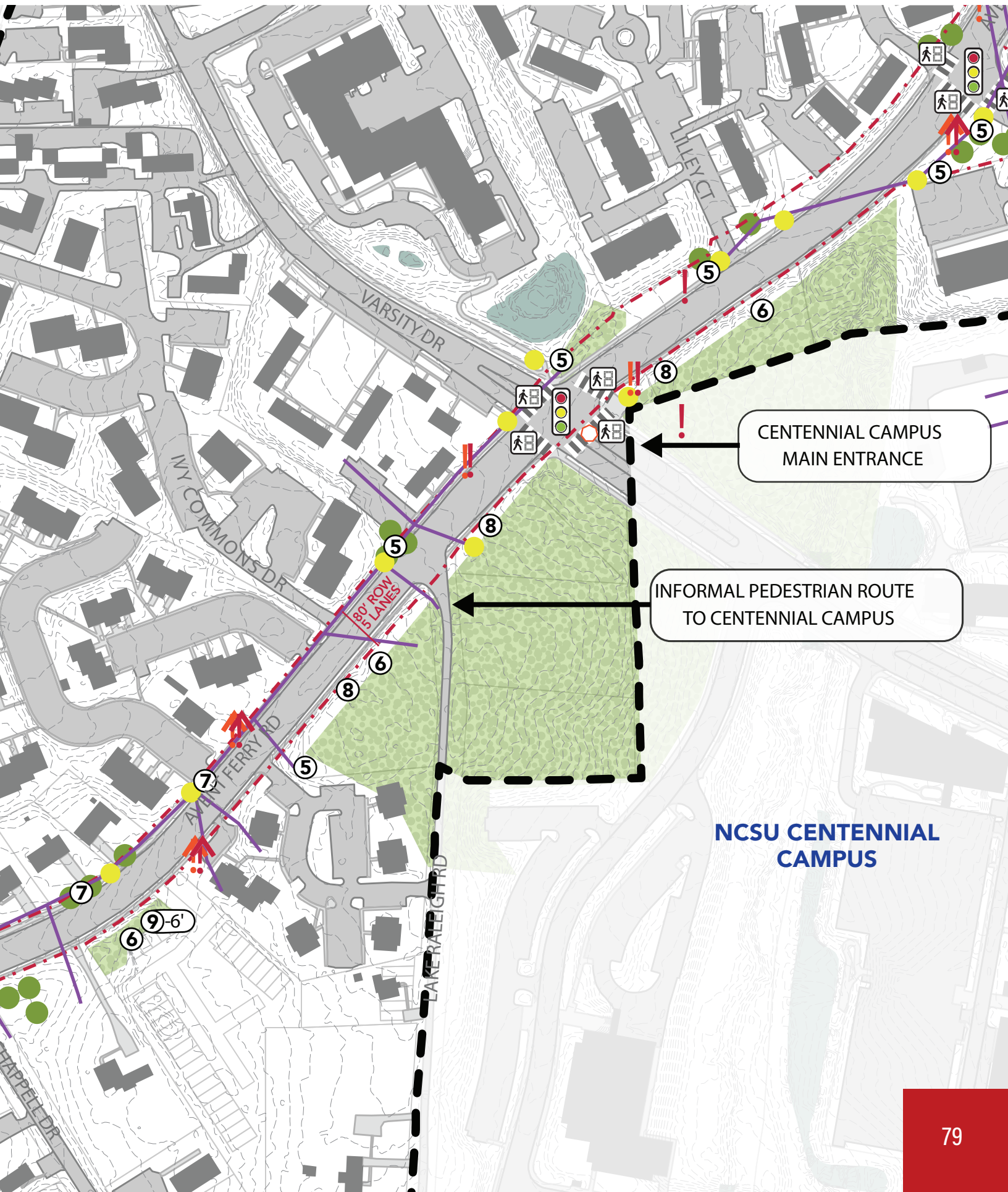
ISSUES AND CONSTRAINTS

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- ⑧ Irrelevant curb cut
- ⑨-5' Topography that may impact roadway expansion and approximate elevation change within 50 feet of right-of-way

NOTES

1. Jay walking to access bus stops is extremely dangerous in this area. Pedestrians are often seen standing in the center turn lane amongst high speed vehicle traffic. Options to provide refuges and safe crossings should be developed.
2. No bicycle facilities are present in this section.





















CENTENNIAL CAMPUS
MAIN ENTRANCE

INFORMAL PEDESTRIAN ROUTE
TO CENTENNIAL CAMPUS

NCSU CENTENNIAL
CAMPUS

SHEET 4: BRIGADOON TR. TO TRAILWOOD DR. - MISSION VALLEY DISTRICT

INVENTORY

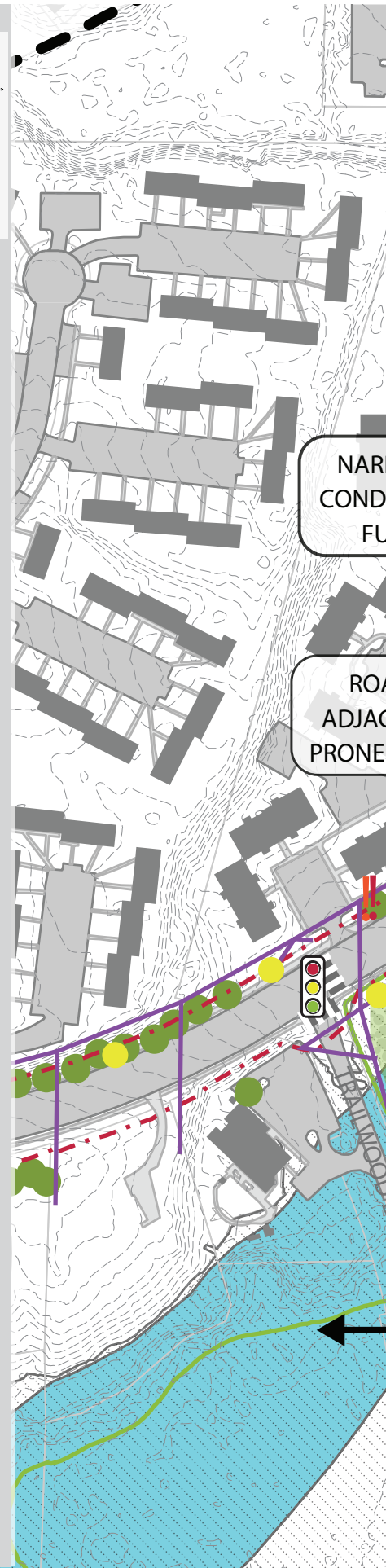
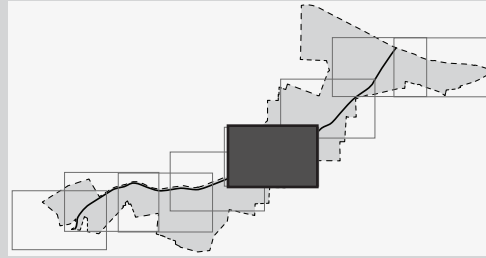
-  Study Boundary
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-  Traffic light
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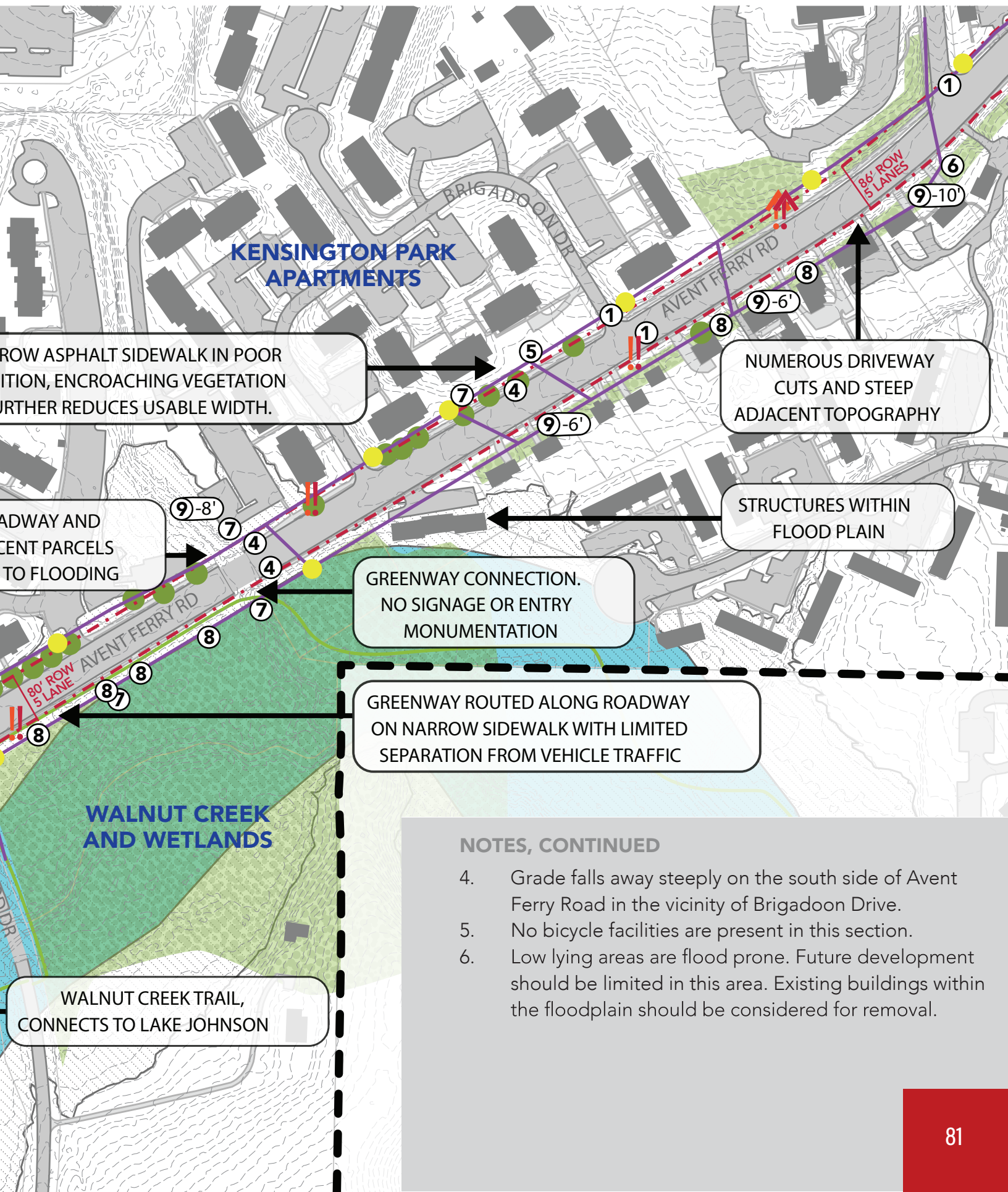
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NOTES

1. Numerous curb cuts create potential for car/pedestrian/bicycle conflicts.
2. Wetlands and Greenway present an excellent opportunity to tie to the overall Raleigh Greenway and recreation network. This vision should consider methods to enhance this network connection.
3. Current development is relatively low density despite being predominantly multi-family. Future development should evaluate higher density options.





KENSINGTON PARK APARTMENTS

ROW ASPHALT SIDEWALK IN POOR CONDITION, ENCROACHING VEGETATION FURTHER REDUCES USABLE WIDTH.

NUMEROUS DRIVEWAY CUTS AND STEEP ADJACENT TOPOGRAPHY

STRUCTURES WITHIN FLOOD PLAIN

ADWAY AND CENT PARCELS TO FLOODING

GREENWAY CONNECTION. NO SIGNAGE OR ENTRY MONUMENTATION

GREENWAY ROUTED ALONG ROADWAY ON NARROW SIDEWALK WITH LIMITED SEPARATION FROM VEHICLE TRAFFIC

WALNUT CREEK AND WETLANDS

















WALNUT CREEK TRAIL, CONNECTS TO LAKE JOHNSON

NOTES, CONTINUED

- 4. Grade falls away steeply on the south side of Avent Ferry Road in the vicinity of Brigadoon Drive.
- 5. No bicycle facilities are present in this section.
- 6. Low lying areas are flood prone. Future development should be limited in this area. Existing buildings within the floodplain should be considered for removal.

SHEET 5: GORMAN STREET - MULTIFAMILY DISTRICT

INVENTORY

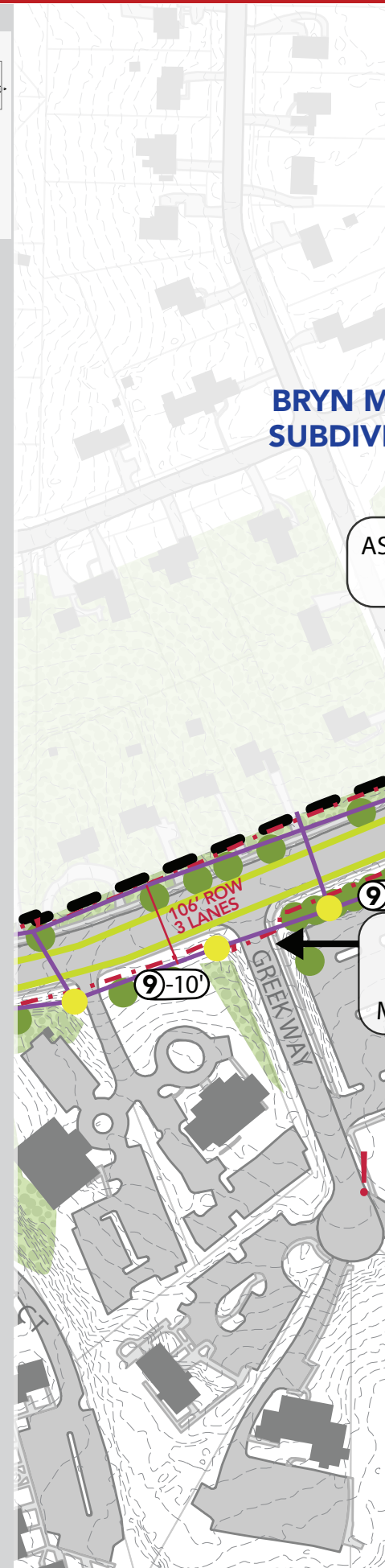
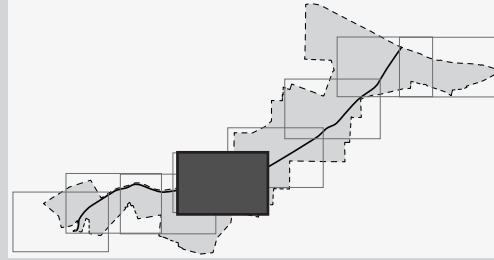
-  Study Boundary
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-  Bicycle infrastructure
-  Greenway
-  Floodplain/Flood Fringe

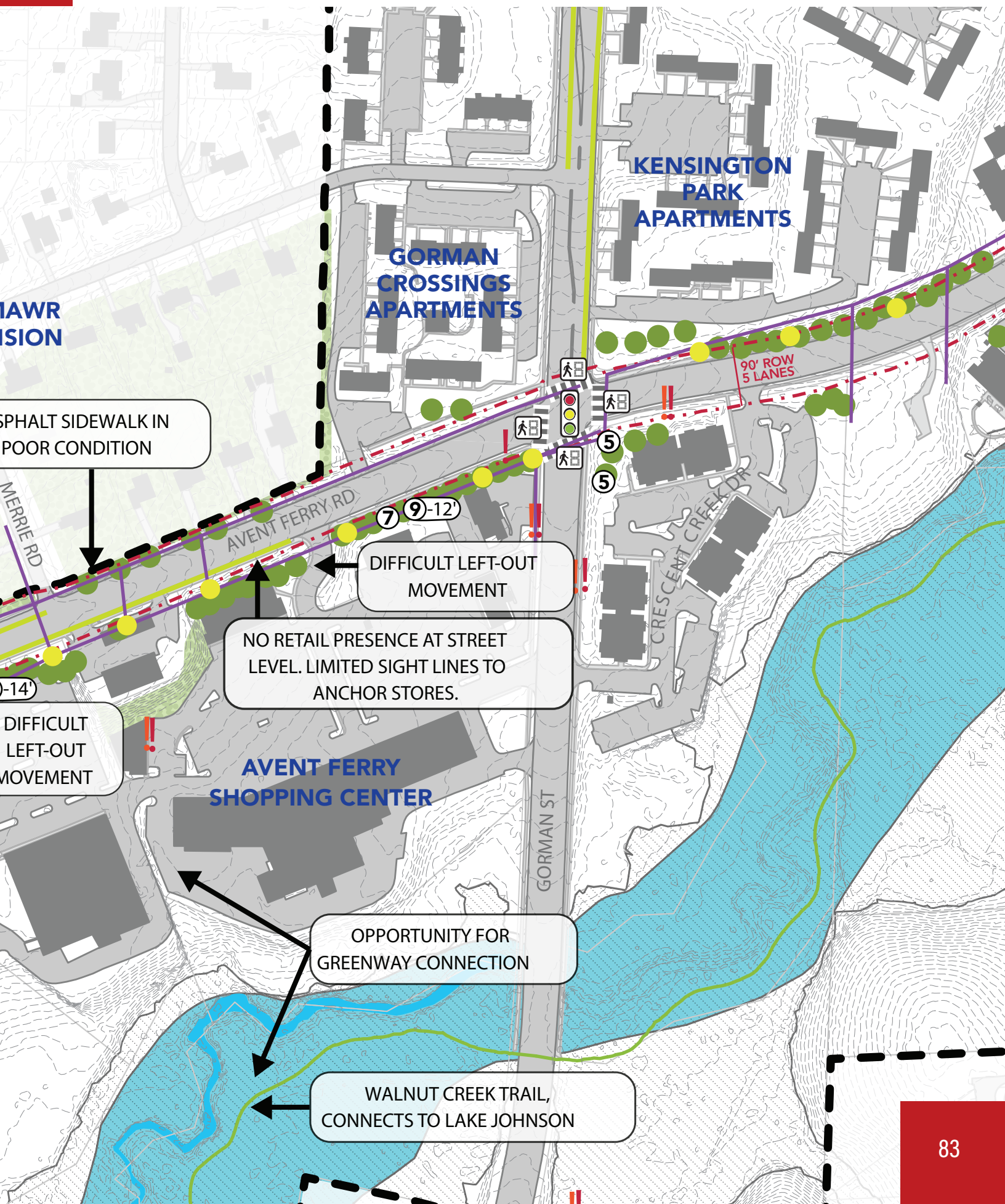
ISSUES AND CONSTRAINTS

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NOTES

1. Retail storefronts at Avent Ferry Shopping Center are separated from the street by distance and grade differential. The existing topography makes below grade parking a viable option at this location. Evaluate building forms that maximize this opportunity.
2. Large parcels are adjacent to the wetland and Greenway system. Landowners should consider semi-private connections to the system.
3. Bicycle facilities are absent from Avent Ferry Shopping Center North.





IAWR
SION

ASPHALT SIDEWALK IN
POOR CONDITION

MERRIE RD

9-14'

DIFFICULT
LEFT-OUT
MOVEMENT

AVENT FERRY RD

DIFFICULT LEFT-OUT
MOVEMENT

NO RETAIL PRESENCE AT STREET
LEVEL. LIMITED SIGHT LINES TO
ANCHOR STORES.

AVENT FERRY
SHOPPING CENTER

OPPORTUNITY FOR
GREENWAY CONNECTION

WALNUT CREEK TRAIL,
CONNECTS TO LAKE JOHNSON

KENSINGTON
PARK
APARTMENTS

















GORMAN
CROSSINGS
APARTMENTS

CRESCENT CREEK DR

GORMAN ST

90' ROW
5 LANES

INVENTORY

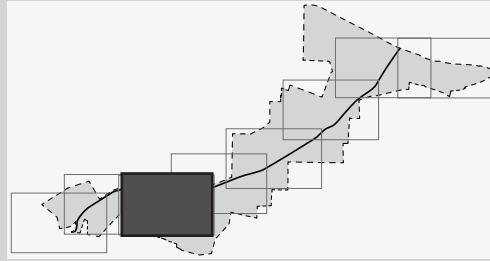
-  Study Boundary
-  Existing right-of-way
-  Powerlines
-  Traffic light
-  Pedestrian signal
-  Crosswalk
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ISSUES AND CONSTRAINTS

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NOTES

1. Numerous driveway cuts exist on the north side of this section.
2. Installation of street trees in this area would require removal of existing tree stands.



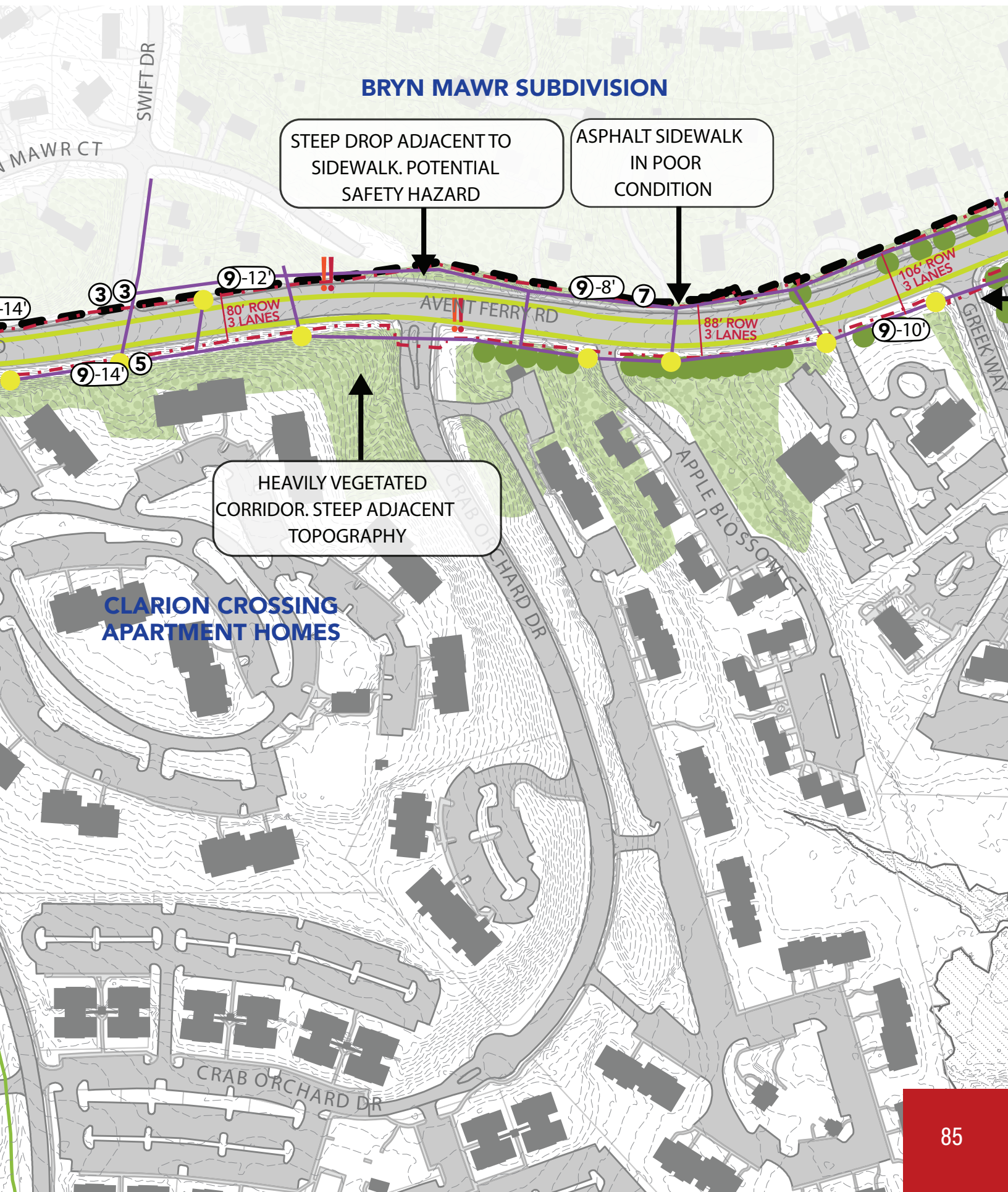
BRYN MAWR SUBDIVISION

STEEP DROP ADJACENT TO
SIDEWALK. POTENTIAL
SAFETY HAZARD

ASPHALT SIDEWALK
IN POOR
CONDITION

















HEAVILY VEGETATED
CORRIDOR. STEEP ADJACENT
TOPOGRAPHY

CLARION CROSSING
APARTMENT HOMES



SHEET 7: ATHENS DRIVE - SINGLE-FAMILY DISTRICT

INVENTORY

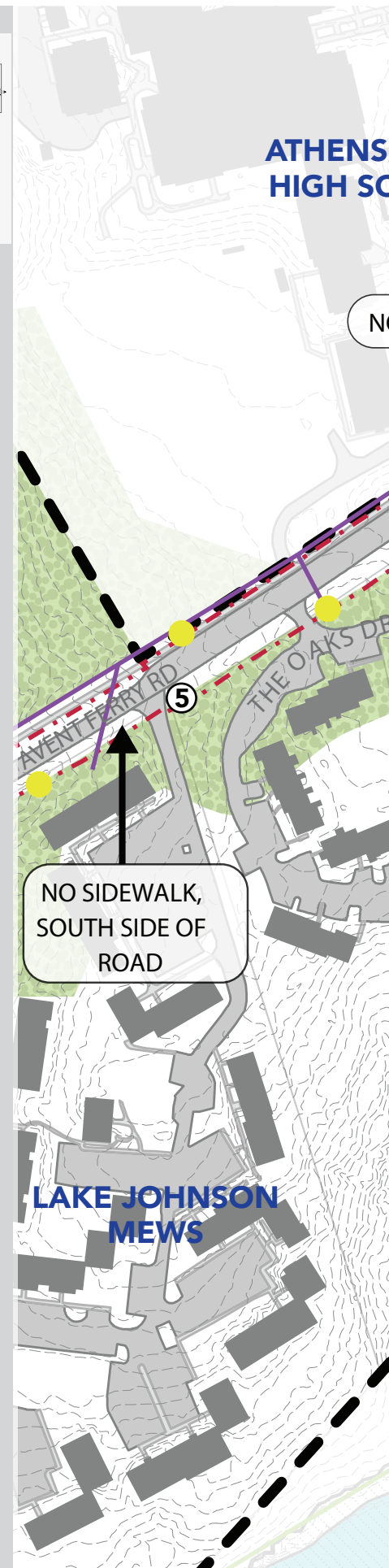
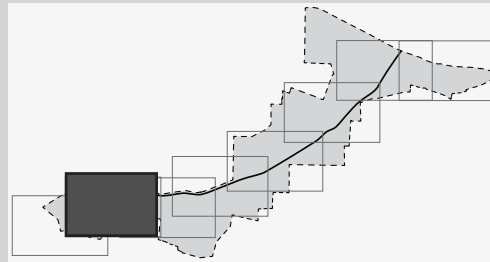
-  Study Boundary
-  Existing right-of-way
-  Powerlines
-  Traffic light
-  Pedestrian signal
-  Crosswalk
-  GoRaleigh bus stop
-  GoTriangle bus stop
-  Bus stop with shelter
-  Median / Pedestrian refuge
-  Existing street tree
-  Adjacent tree canopy
-  Lighting on poles
-  Bicycle infrastructure
-  Greenway
-  Floodplain/Flood Fringe

ISSUES AND CONSTRAINTS

- ① No existing crosswalk and/or common jaywalking location
- ② Crosswalk with low visibility
- ③ Ramps not ADA compliant
- ④ Narrow sidewalk: 5 feet or less
- ⑤ Above ground control cabinets
- ⑥ Large trees outside and on edge of right-of-way
- ⑦ Trees underneath and/or growing into power lines
- ⑧ Irrelevant curb cut
- ⑨-5' Topography that may impact roadway expansion and approximate elevation change within 50 feet of right-of-way

NOTES

1. Sidewalk is present on north side only in portions of this section.
2. No bicycle facilities in this section.



DRIVE
SCHOOL

NO SIDEWALK

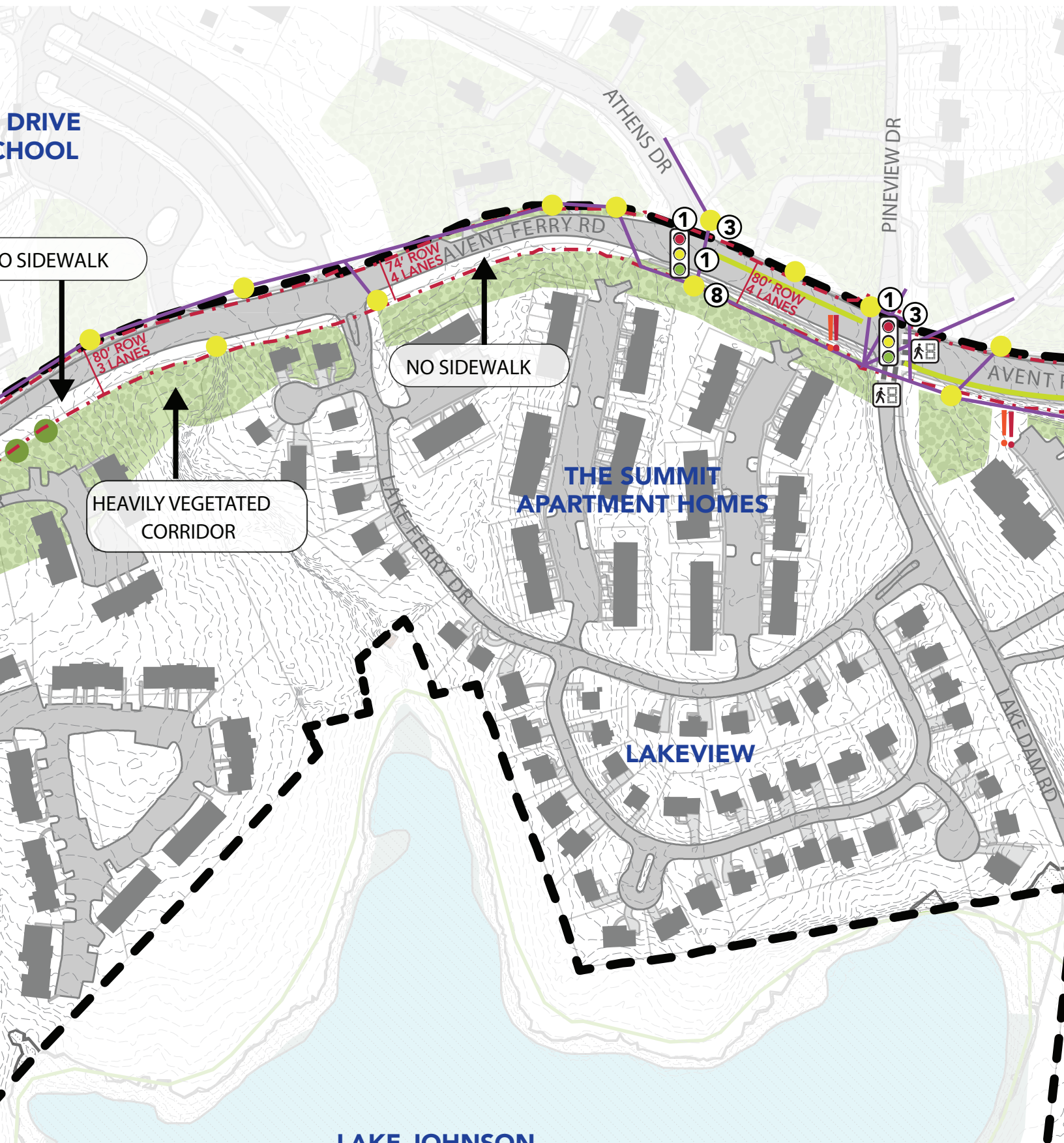
HEAVILY VEGETATED
CORRIDOR

NO SIDEWALK

THE SUMMIT
APARTMENT HOMES

















LAKEVIEW

LAKE JOHNSON



SHEET 8: LAKE JOHNSON PARK -
SINGLE-FAMILY DISTRICT

INVENTORY

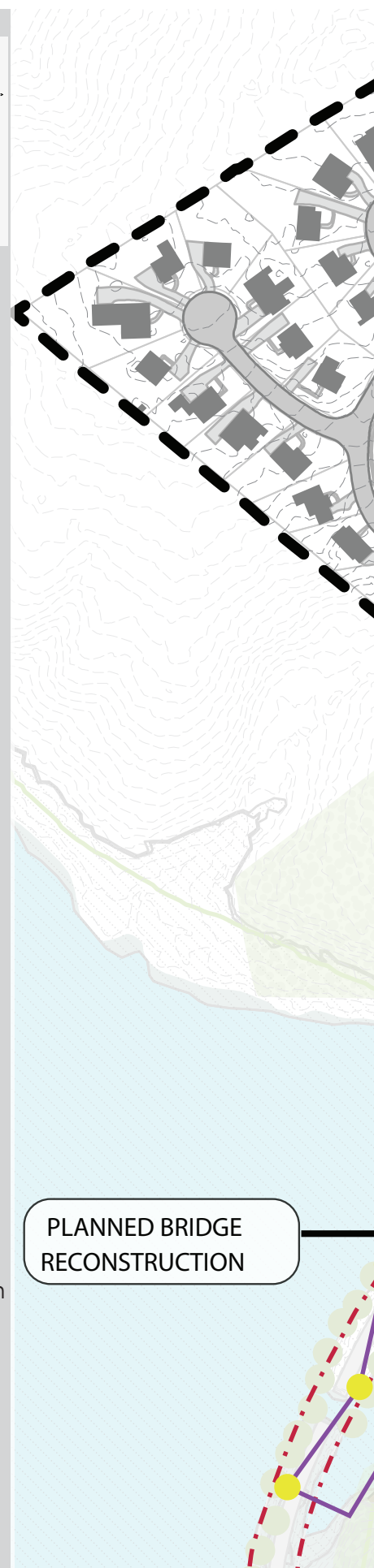
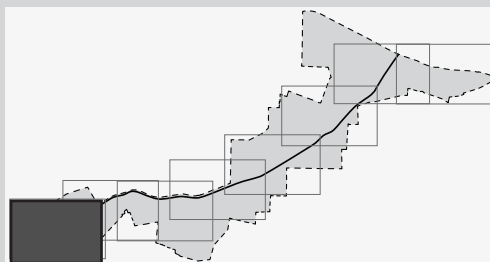
-  Study Boundary
-  Existing right-of-way
-  Powerlines
-  Traffic light
-  Pedestrian signal
-  Crosswalk
-  GoRaleigh bus stop
-  GoTriangle bus stop
-  Bus stop with shelter
-  Median / Pedestrian refuge
-  Existing street tree
-  Adjacent tree canopy
-  Lighting on poles
-  Bicycle infrastructure
-  Greenway
-  Floodplain/Flood Fringe

ISSUES AND CONSTRAINTS

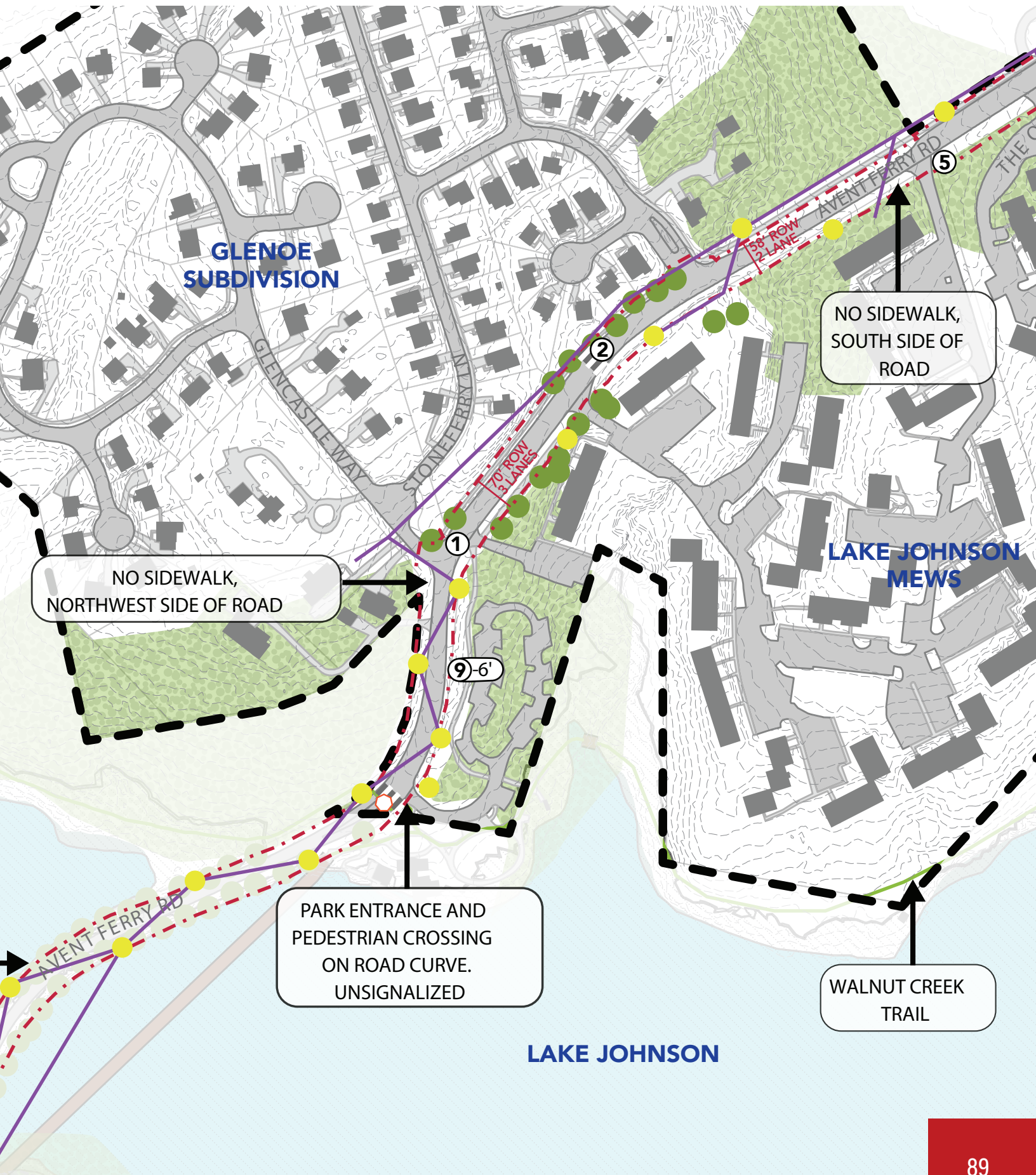
- ① No existing crosswalk and/or common jaywalking location
- ② Crosswalk with low visibility
- ③ Ramps not ADA compliant
- ④ Narrow sidewalk: 5 feet or less
- ⑤ Above ground control cabinets
- ⑥ Large trees outside and on edge of right-of-way
- ⑦ Trees underneath and/or growing into power lines
- ⑧ Irrelevant curb cut
- ⑨-5' Topography that may impact roadway expansion and approximate elevation change within 50 feet of right-of-way

NOTES

1. NCDOT bridge replacement project will add 7.5 feet bicycle lanes and 5.5 feet sidewalks to the Lake Johnson causeway. Construction is projected to begin in 2018.



PLANNED BRIDGE
RECONSTRUCTION





Appendices

1. Transportation Analysis Appendix

Avent Ferry Crash Tables

Avent Ferry & Western Blvd		
Collision Type	No. of Crashes	Probable Cause
Rear End	32	Failure to Reduce Speed
Angle	8	Red Light Violation / Unsafe Movement
Sideswipe, Same Dir	17	Lane Change/Wide Turn
Sideswipe, Opp Dir	1	Unsafe Movement
Right Turn	3	Unsafe Movement
Head On	1	Redlight Violation/Unsafe Movement
Backing Up	1	Unsafe Movement
Pedestrian	2	Failure to yield ROW
Other	7	
Total	72	

The number and probably causes of crashes at Avent Ferry and Western Boulevard intersection. Data source is crash reports from 2012 to 2016 and is reported crashes per Million Vehicle Miles (MVM) traveled.

Avent Ferry & Centennial Pkwy		
Collision Type	No. of Crashes	Probable Cause
Rear End	16	Failure to Reduce Speed
Angle	5	Red Light Violation / Unsafe Movement
Sideswipe, Same Dir	5	Lane Change/Wide Turn
Sideswipe, Opp Dir	1	Unsafe Movement
Right Turn	1	Unsafe Movement
Left Turn	9	Red Light Violation / Unsafe Movement
Pedestrian	3	Red Light Violation / Unsafe Movement
Ran Off Road	1	Unsafe Movement
Fixed Object	2	Intoxication/Reckless Driving
Parked Motor Veh	1	Unsafe Movement
Other	3	
Total	47	

The number and probably causes of crashes at Avent Ferry and Centennial Parkway intersection. Data source is crash reports from 2012 to 2016 and is reported crashes per Million Vehicle Miles (MVM) traveled.

Avent Ferry & Varsity Drive		
Collision Type	No. of Crashes	Probable Cause
Rear End	15	Failure to Reduce Speed
Angle	24	Red Light Violation / Unsafe Movement
Sideswipe, Same Dir	5	Lane Change/Wide Turn
Sideswipe, Opp Dir	5	Unsafe Movement
Left Turn	27	Unsafe Movement/Red Light Violation
Pedestrian	2	Failure to Yield ROW
Other	3	
Total	81	

The number and probably causes of crashes at Avent Ferry and Varsity Drive intersection. Data source is crash reports from 2012 to 2016 and is reported crashes per Million Vehicle Miles (MVM) traveled.

Avent Ferry & Trailwood Drive		
Collision Type	No. of Crashes	Probable Cause
Rear End	10	Failure to Reduce Speed
Angle	9	Red Light Violation / Unsafe Movement
Sideswipe, Same Dir	4	Lane Change/Wide Turn
Overturn/Rollover	1	Avoid Accident Ahead
Left Turn	8	Red Light Violation/Unsafe Movement
Head On	1	Unsafe Movement
Parked Motor Veh	2	Unsafe Movement
Pedestrian	1	Failure to yield ROW
Ran Off Road	1	Unsafe Movement
Other	2	
Total	39	

The number and probably causes of crashes at Avent Ferry and Trailwood Drive intersection. Data source is crash reports from 2012 to 2016 and is reported crashes per Million Vehicle Miles (MVM) traveled.

Avent Ferry & Gorman Street		
Collision Type	No. of Crashes	Probable Cause
Rear End	23	Failure to Reduce Speed
Angle	8	Red Light Violation / Unsafe Movement
Sideswipe, Same Dir	4	Lane Change/Wide Turn
Left Turn	5	Unsafe Movement
Right Turn	3	Unsafe Movement
Other	2	
Total	45	

The number and probably causes of crashes at Avent Ferry and Gorman Street intersection. Data source is crash reports from 2012 to 2016 and is reported crashes per Million Vehicle Miles (MVM) traveled.

Avent Ferry & Pineview Drive		
Collision Type	No. of Crashes	Probable Cause
Rear End	4	Failure to Reduce Speed
Angle	7	Red Light Violation / Unsafe Movement
Right Turn	1	Unsafe Movement
Left Turn	4	Red Light Violation/Unsafe Movement
Head On	1	Red Light Violation
Fixed Obj	2	Ranoff Road
Ran Off Road	2	Intoxication/Unsafe Movement
Total	21	

The number and probably causes of crashes at Avent Ferry and Pineview Drive intersection. Data source is crash reports from 2012 to 2016 and is reported crashes per Million Vehicle Miles (MVM) traveled.

Avent Ferry & Tryon Road		
Collision Type	No. of Crashes	Probable Cause
Rear End	6	Failure to Reduce Speed/Unsafe Movement
Angle	7	Red Light Violation / Unsafe Movement
Sideswipe, Same Dir	1	Lane Change
Sideswipe, Opp Dir	1	Failure to Reduce Speed
Right Turn	2	Unsafe Movement
Left Turn	7	Red Light Violation/Unsafe Movement
Head On	1	Red Light Violation
Backing Up	1	Unsafe Movement
Ran Off Road	2	Intoxication/Unsafe Movement
Total	28	

The number and probable causes of crashes at Avent Ferry and Tryon Road intersection. Data source is crash reports from 2012 to 2016 and is reported crashes per Million Vehicle Miles (MVM) traveled.

Crash Table By Intersection and Section

Intersection	Fatalities	Injuries			PDO	Total	Crash Freq. (Cr/yr)	Severity Index	EPDO
		A	B	C					
Western Boulevard	0	0	2	8	62	72	14.4	2.03	146
Centennial Parkway	0	0	8	5	34	47	9.4	3.05	143.2
Varsity Drive	0	0	4	18	59	81	16.2	3.01	243.8
Trailwood Drive	0	0	3	7	29	39	7.8	2.90	113
Gorman Street	0	0	0	8	37	45	9	2.32	104.2
Pineview Drive	0	0	2	3	16	21	4.2	2.76	58
Tryon Road	0	0	4	5	19	28	5.6	3.38	94.6

Summary of five year crash and injury data (2012-2016) for sections of the Avent Ferry Road corridor.

Location (along Avent Ferry Dr)	AADT Avent Ferry	Fatalities	Injury			PDO	Total	Crash Freq. (Cr/yr)	Severity Index	EPDO	Crash Rate (per MVM traveled)
			A	B	C						
Section 1 (Western - Centennial)	22000	0	0	7	24	142	173	34.6	2.33	402	16.45
Section 2 (Centennial - Varsity)	22000	0	0	8	6	46	60	12	2.73	164	8.30
Section 3 (Varsity - Trailwood)	18000	0	0	11	33	140	184	36.8	2.77	510	7.37
Section 4 (Trailwood - Gorman)	18000	0	0	3	9	34	46	9.2	2.93	135	8.24
Section 5 (Gorman - Pineview)	15000	0	0	6	20	86	112	22.4	2.72	304	5.80
Section 6 (Pineview - Athens)	7400	0	0	0	2	3	5	1	3.96	20	5.58
Section 7 (Athens - Tryon)	7400	0	1	6	12	72	91	18.2	3.30	300	4.23

Summary of five year crash and injury data (2012-2016) for intersections along the Avent Ferry Road corridor.

Level of Service Table with Improvements

Intersection	{Future}	Approach	Existing (2014)				Current (2017)				With Improvements (2017)			
			AM		PM		Delay (sec)	AM		Delay (sec)	PM		Delay (sec)	LOS
			Delay (sec)	LOS	Delay (sec)	LOS		Delay (sec)	LOS		Delay (sec)	LOS		
Western Blvd @ Avent Ferry Rd. / Morrill Dr.		Intersection Average	50.6	D	71.2	E	55.3	E	85.2	F	52.9	D	77.4	E
		EB - Western Blvd	40.9	D	54.4	D	42.5	D	56.9	E	40.8	D	62.0	E
		WB - Western Blvd	49.4	D	57.7	E	51.1	D	58.2	E	46.7	D	67.6	E
		NB - Avent Ferry Rd	61.9	E	92.6	F	74.7	E	127.0	F	72.7	E	101.6	F
		SB - Morrill Dr	66.9	E	117.9	F	65.2	E	166.0	F	69.8	E	105.9	F
Avent Ferry Rd. @ Champion Ct. / Centennial Pkwy		Intersection Average	14.8	B	20.2	C	15.1	B	21.0	C	13.8	B	21.0	C
		EB - Champion Ct	58.1	E	58.4	E	58.5	E	59.0	E	58.5	E	59.0	E
		WB - Centennial Pkwy	52.4	D	47.5	D	52.7	D	46.8	D	54.6	D	51.8	D
		NB - Avent Ferry Rd	5.5	A	11.4	B	5.8	A	12.9	B	2.7	A	11.1	B
		SB - Avent Ferry Rd	6.4	A	11.1	B	6.7	A	12.2	B	6.7	A	10.9	B
Avent Ferry Rd. @ Varsity Dr.		Intersection Average	31.4	C	35.8	D	34.0	C	38.4	D	33.9	C	37.4	D
		EB - Varsity Dr	56.3	E	62.2	E	60.2	E	68.6	E	57.3	E	68.1	E
		WB - Varsity Dr	24.2	C	32.6	C	24.5	C	34.2	C	23.9	C	36.0	D
		NB - Avent Ferry Rd	24.3	C	38.6	D	25.6	C	40.5	D	27.8	C	38.9	D
		SB - Avent Ferry Rd	27.5	C	28.8	C	32.5	C	32.1	C	29.4	C	28.4	C
Avent Ferry Rd. @ Trailwood Dr.		Intersection Average	27.3	C	8.0	A	28.1	C	8.5	A	29.7	C	8.9	A
		EB - Avent Ferry Rd	30.0	C	8.3	A	30.5	C	9.5	A	32.0	C	10.0	A
		WB - Avent Ferry Rd	0.9	A	2.0	A	0.9	A	2.5	A	0.8	A	2.9	A
		NB - Trailwood Dr	40.6	D	48.8	D	42.6	D	46.9	D	45.6	D	46.7	D
		Intersection Average	44.9	D	49.7	D	48.1	D	57.8	E	45.9	D	48.2	D
Avent Ferry Rd. @ Gorman St.		EB - Avent Ferry Rd	39.6	D	46.5	D	43.4	D	47.9	D	42.4	D	50.1	D
		WB - Avent Ferry Rd	52.4	D	41.6	D	58.8	E	46.9	D	57.6	E	40.9	D
		NB - Gorman St	46.0	D	51.8	D	48.0	D	53.3	D	44.7	D	44.3	D
		SB - Gorman St	46.4	D	63.0	E	47.9	D	84.5	F	45.1	D	60.7	E
		Intersection Average	18.8	B	17.6	B	19.3	B	18.6	B	19.3	B	18.2	B
Avent Ferry Rd. @ Lake Dam Rd. / Pineview Dr.		EB - Avent Ferry Rd	9.5	A	9.6	A	10.0	B	9.9	A	10.0	B	10.3	B
		WB - Avent Ferry Rd	15.0	B	15.2	B	15.9	B	15.9	B	15.9	B	15.6	B
		NB - Lake Dam Rd	42.0	D	41.9	D	42.3	D	45.5	D	42.3	D	43.2	D
		SB - Pineview Dr	25.3	C	31.6	C	24.8	C	32.1	C	24.8	C	31.3	C
		Intersection Average	19.9	B	19.5	B	20.7	C	20.4	C	20.7	C	20.3	C
Avent Ferry Rd. @ Athens Dr.		EB - Avent Ferry Rd	19.4	B	16.6	B	21.1	C	18.1	B	21.1	C	17.3	B
		WB - Avent Ferry Rd	22.0	C	20.1	C	22.8	C	21.2	C	22.8	C	21.1	C
		SB - Athens Dr	18.1	B	20.6	C	17.4	B	20.7	C	17.4	B	21.4	C

Level of Service Table without Improvements

Intersection	Approach	2014				2017				
		AM		PM		AM		PM		
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	
Western Blvd @ Avent Ferry Rd. / Morrill Dr.	Signalized	Intersection Average	50.6	D	71.2	E	55.3	E	85.2	F
		EB - Western Blvd	40.9	D	54.4	D	42.5	D	56.9	E
		WB - Western Blvd	49.4	D	57.7	E	51.1	D	58.2	E
		NB - Avent Ferry Rd	61.9	E	92.6	F	74.7	E	127.0	F
		SB - Morrill Dr	66.9	E	117.9	F	65.2	E	166.0	F
Avent Ferry Rd. @ Champion Ct. / Centennial Pkwy	Signalized	Intersection Average	14.8	B	20.2	C	15.1	B	21.0	C
		EB - Champion Ct	58.1	E	58.4	E	58.5	E	59.0	E
		WB - Centennial Pkwy	52.4	D	47.5	D	52.7	D	46.8	D
		NB - Avent Ferry Rd	5.5	A	11.4	B	5.8	A	12.9	B
		SB - Avent Ferry Rd	6.4	A	11.1	B	6.7	A	12.2	B
Avent Ferry Rd. @ Varsity Dr.	Signalized	Intersection Average	31.4	C	35.8	D	34.0	C	38.4	D
		EB - Varsity Dr	56.3	E	62.2	E	60.2	E	68.6	E
		WB - Varsity Dr	24.2	C	32.6	C	24.5	C	34.2	C
		NB - Avent Ferry Rd	24.3	C	38.6	D	25.6	C	40.5	D
		SB - Avent Ferry Rd	27.5	C	28.8	C	32.5	C	32.1	C
Avent Ferry Rd. @ Trailwood Dr.	Signalized	Intersection Average	27.3	C	8.0	A	28.1	C	8.5	A
		EB - Avent Ferry Rd	30.0	C	8.3	A	30.5	C	9.5	A
		WB - Avent Ferry Rd	0.9	A	2.0	A	0.9	A	2.5	A
		NB - Trailwood Dr	40.6	D	48.8	D	42.6	D	46.9	D
		Intersection Average	44.9	D	49.7	D	48.1	D	57.8	E
Avent Ferry Rd. @ Gorman St.	Signalized	EB - Avent Ferry Rd	39.6	D	46.5	D	43.4	D	47.9	D
		WB - Avent Ferry Rd	52.4	D	41.6	D	58.8	E	46.9	D
		NB - Gorman St	46.0	D	51.8	D	48.0	D	53.3	D
		SB - Gorman St	46.4	D	63.0	E	47.9	D	84.5	F
		Intersection Average	18.8	B	17.6	B	19.3	B	18.6	B
Avent Ferry Rd. @ Lake Dam Rd. / Pineview Dr.	Signalized	EB - Avent Ferry Rd	9.5	A	9.6	A	10.0	B	9.9	A
		WB - Avent Ferry Rd	15.0	B	15.2	B	15.9	B	15.9	B
		NB - Lake Dam Rd	42.0	D	41.9	D	42.3	D	45.5	D
		SB - Pineview Dr	25.3	C	31.6	C	24.8	C	32.1	C
		Intersection Average	19.9	B	19.5	B	20.7	C	20.4	C
Avent Ferry Rd. @ Athens Dr.	Signalized	EB - Avent Ferry Rd	19.4	B	16.6	B	21.1	C	18.1	B
		WB - Avent Ferry Rd	22.0	C	20.1	C	22.8	C	21.2	C
		SB - Athens Dr	18.1	B	20.6	C	17.4	B	20.7	C

2. Market and Economic Analysis Appendix & Resources

Methodology

This analysis encompasses the broader reach of the market, from a macro and micro perspective. The analysis and forecasting of market data, which includes demographic and population estimate, combined with real estate, economic, and employment estimates, is both art and science. Therefore, several methodologies are utilized throughout this report, including but not limited to, Economic Base Analysis, Highest & Best Use Analysis, and Central Place Theory.

Data

All market research analysts begin with U.S. Census Bureau data - which has limitations as to accuracy and timeliness. Nonetheless, the data provides a benchmark as much for a retrospective look as a prospective one. Two factors must be considered when looking exclusively at demographic data: the role of economic drivers that are a departure from past trends' growth from primary centers spilling over into outlying areas (i.e. "sprawl"); and constraints due to availability of land physically and legally suited for such development. We utilize ESRI, State and U.S. Census data in our analysis. Detailed reports and data are attached for reference.

Additional data sources include Xceligent, Costar, the Triangle Board of Realtors ,N.C. Department of Commerce, and REIS, Inc.

Assumptions & Limiting Conditions

The conclusions set forth are based upon information provided by public records, municipal officials, business owners, market and demographic data obtained by Rose & Associates Southeast Inc. Neither an appraisal nor title search was performed for the site or any specific property in preparing this report. While the information included herein is believed to be accurate, no warranty or representation, expressed or implied, is made as to the information contained herein, and is submitted subject to omission, change of market conditions, or other factors outside the scope of this report or the author's control. This report is the property of Rose & Associates Southeast Inc. and the client, and shall not be duplicated in whole or in part, without express written permission, all rights reserved, 2017.

References

2030 Comprehensive Plan for the City of Raleigh (Mission Valley & Avent West)

Southwest Raleigh Economic Assessment for Creative District - 2012

Southern Gateway Corridor Study Final Report

Southwest Raleigh Residential Market Analysis

N.C. State University Master Plan – Centennial Campus Precinct

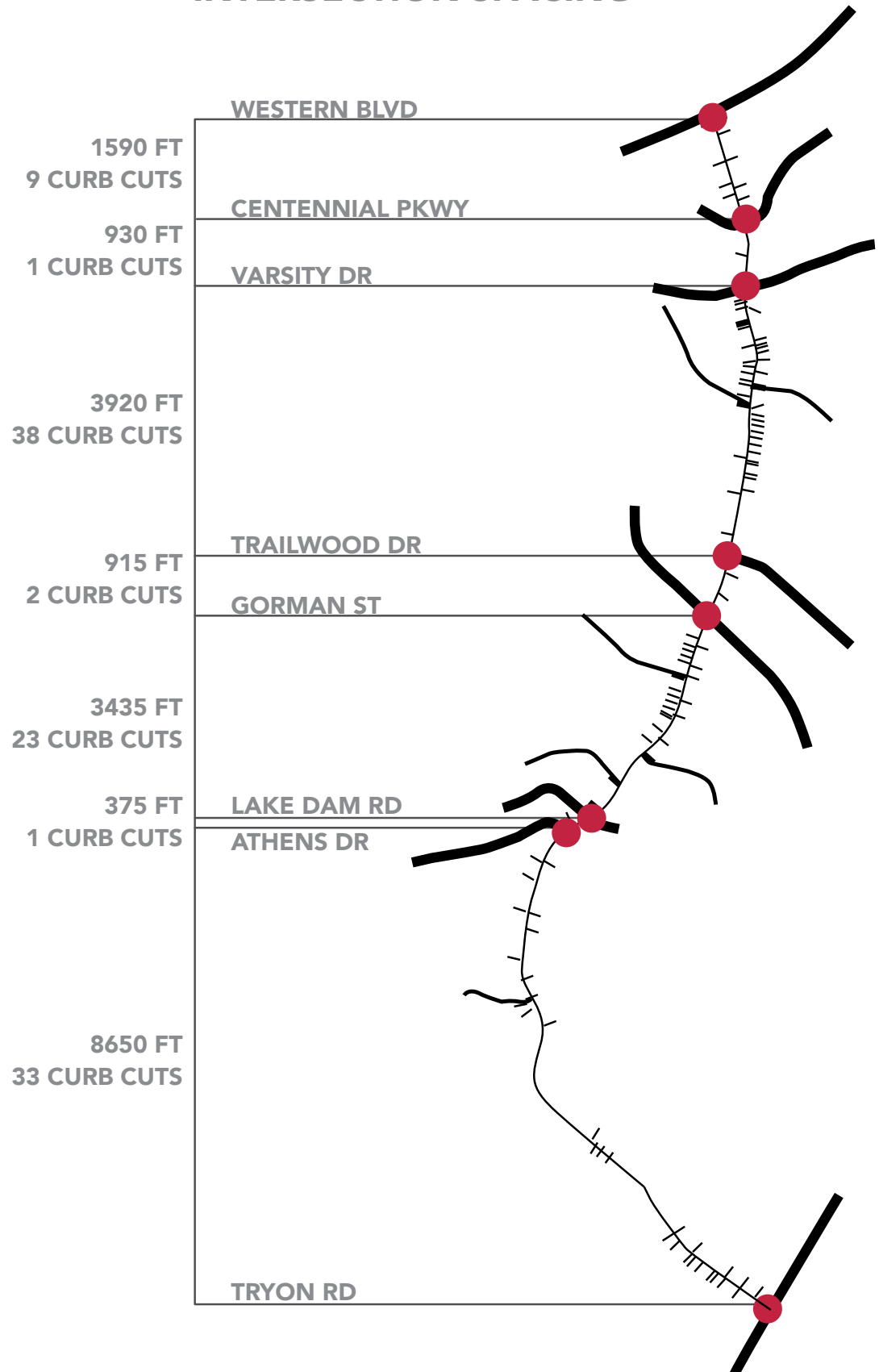
Avent Ferry Corridor Project – Briefing Book

Dorothea Dix Campus Plan – City of Raleigh

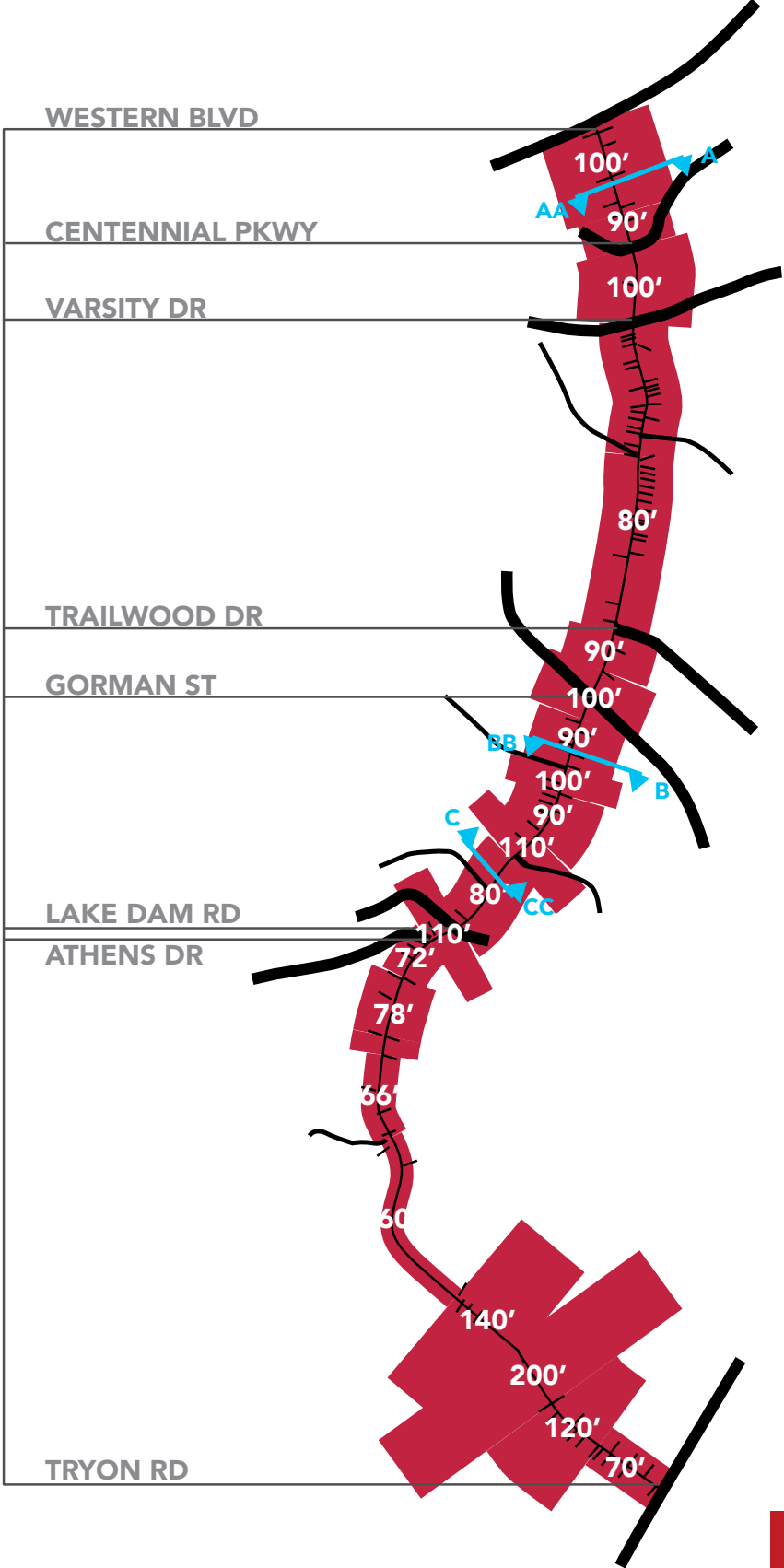
Avent Ferry Corridor Project – Vision Document

3. Urban Design Appendix

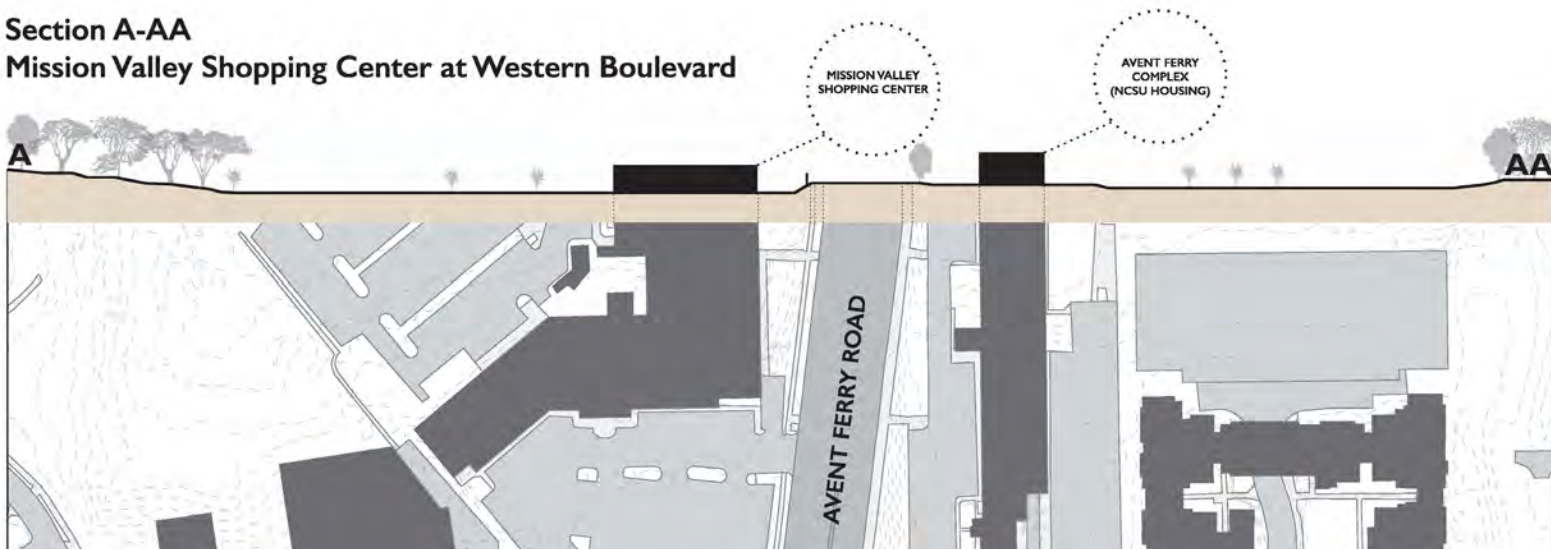
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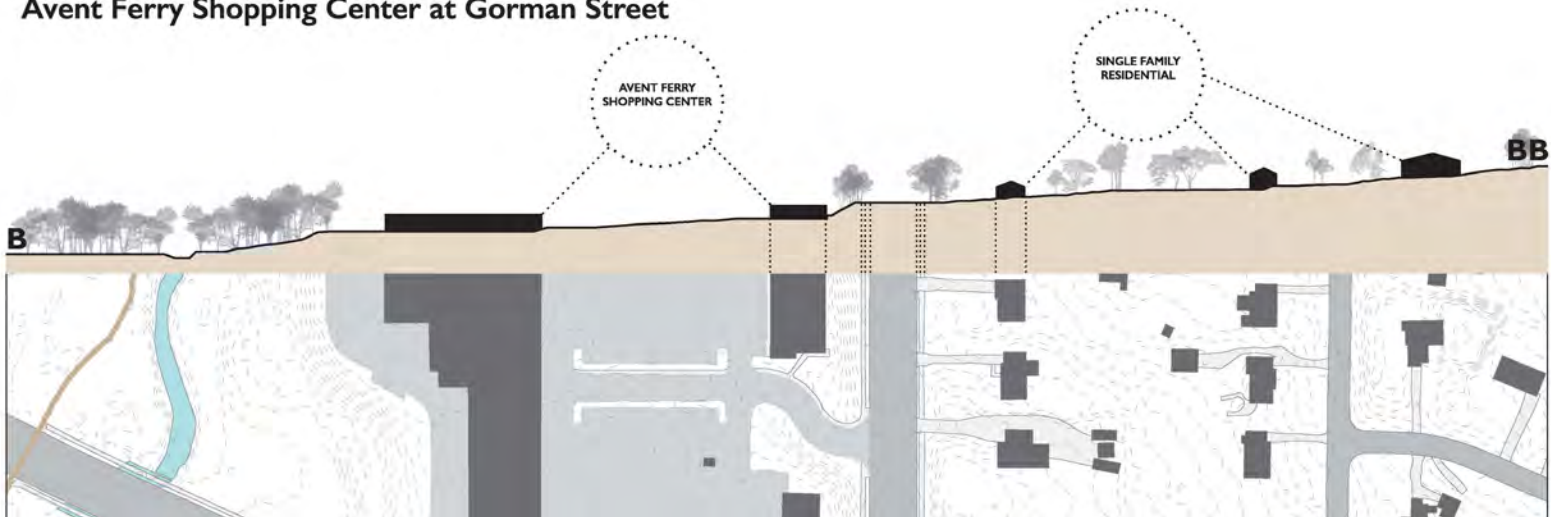
RIGHT OF WAY WIDTHS



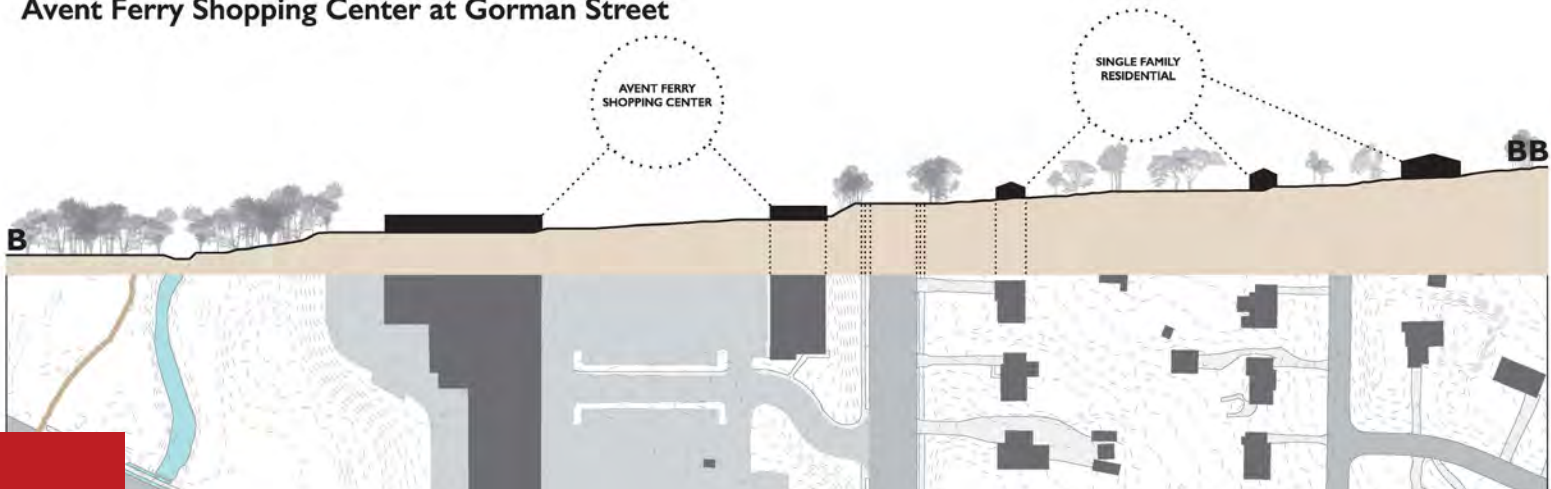
Section A-AA
Mission Valley Shopping Center at Western Boulevard



Section B-BB
Avent Ferry Shopping Center at Gorman Street



Section B-BB
Avent Ferry Shopping Center at Gorman Street





AF

Avent Ferry Road

Corridor Study

RCP

RALEIGH
DEPARTMENT OF
CITY PLANNING

